Report

Study on the causes of increased Cesarean section rate in Armenia

Analysis of findings of the qualitative and quantitative interviews

Armenia 2022

Contents

Acknowledgments

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Abbreviations

PHCC	Primary Health Care Center
HC	Health Center
MoH	Ministry of Health
HCC	Health Care Center
ROC	Rural Outpatient Clinic
CMS	Candidate of Medical Sciences
MC	Medical Center
YSMU	Yerevan State Medical University
WC	Women's Consultation
CS	Cesarean section
VD	Vaginal delivery
RA	Republic of Armenia
UN	United Nations Organization
RCMCHP	Research Center of Maternal and Child Health Protection
PC	Polyclinic
LLC	Limited Liability Company
RIPOG	Republican Institute of Perinatology, Obstetrics and Gynecology
CJSC	Close Joint Stock Company
FIGO	International Federation of Gynecology and Obstetrics
HRR	Human Reproduction Report

Introduction

Cesarean section (CS) is one of the most common surgical interventions with continuously increasing rates especially in high- and medium-income countries. While it can be a life-saving procedure, Cesarean section is often done without medical indications putting women and babies at unnecessary risk of short- and long-term health problems. As with any surgery, Cesarean sections are associated with short- and long-term risks which can extend many years beyond delivery and affect the health of the woman, baby and future pregnancies. Maternal risks include infections, bleeding, damage to other organs and complications associated with anesthesia or blood transfusions. There is also a higher risk of complications in subsequent pregnancies, such as uterine rupture, placental implantation problems and need for hysterectomy. Infant risks include respiratory problems, asthma and obesity in childhood[1].

However, insufficient use of CS contributes to maternal and perinatal mortality and increase in morbidity. On the contrary, excessive use (mostly without medical indications) has no use, it can rather cause harm to health and waste of financial resources.

CS rates are increasing globally without any signs of slowing down: worldwide rates have increased from 6-7% in 1990 to 19% in 2014, and 21% in 2021[2]. The absolute indicators of the CS frequency, as such, are faceless, describing generally the prevalence and relevance of this method of child delivery in the world, and they do not prove that the CS is justified. To date, there are no meta-analyses and global studies on the CS structure with justified indications for it. Unfortunately, most epidemiological studies render only combined information that reflects the frequency of CSs, uterine incision, the ratio of antenatal and intranatal CS, etc., which does not allow to adjust the delivery management protocols to the current reality, to different capacities of medical facilities, and to the resources of a particular country or region.

According to the Human Reproduction Annual Report (HRP) 2020-2021 and World Health Organization (WHO), the CS rate globally has been 21% in 2021[3]. The top five countries with the highest CS rate worldwide were Dominican Republic (58.1%), Brazil (55.7%), Cyprus (55.3%), Egypt (51.8%) and Turkey (50.8%)[4]. In Europe, the highest CS rate was found in

[1] Chen I, Opiyo N, Tavender E, Mortazhejri S, Rader T, Petkovic J, Yogasingam S, Taljaard M, Agarwal S, Laopaiboon M, Wasiak J, Khunpradit S, Lumbiganon P, Gruen RL, Betran AP. Non-clinical interventions for reducing unnecessary caesarean section. Cochrane Database Syst Rev. 2018 Sep 28;9(9):CD005528. doi: 10.1002/14651858.CD005528.pub3. PMID: 30264405; PMCID: PMC6513634.

[2] https://www.who.int/news/item/16-06-2021-caesarean-section-rates-continue-to-rise-amid-growing-inequalities-in-access

[3] https://www.who.int/news/item/16-06-2021-caesarean-section-rates-continue-to-rise-amid-growing-inequalities-in-access

[4] Betran AP, Ye J, Moller AB, Souza JP, Zhang J. Trends and projections of caesarean section rates: global and regional estimates. BMJ Glob Health. 2021 Jun;6(6):e005671. doi: 10.1136/bmjgh-2021-005671. PMID: 34130991; PMCID: PMC8208001

Romania (46.9%). According to the same source, the CS rate in our region and in CIS countries in 2018 was as follows: Iran (48%) [5], Georgia (46.6%), Armenia (37.5%), Belarus (29.6%), Russia (20.8%), Kazakhstan (18%), Kyrgyzstan (8.3%).

As the authors of the Human Reproduction Report 2021 foresee, by 2030 38 million deliveries will be done through caesarean section with the average rate of CS worldwide plummeting from the current 21.1% to 28.5%.

Based on this available data and using internationally accepted methods, WHO concludes[6]:

1. Cesarean sections are effective in saving maternal and infant lives, but only when they are required for medically indicated reasons.

2. At population level, Cesarean section rates higher than 10% are not associated with reductions in maternal and newborn mortality rates.

3. Cesarean sections can cause significant and sometimes permanent complications, disability or death particularly in settings that lack the facilities and/or capacity to properly conduct safe surgery and treat surgical complications. Cesarean sections should ideally only be undertaken when medically necessary.

4. Every effort should be made to provide Cesarean sections to women in need, rather than striving to achieve a specific rate.

5. The effects of Cesarean section rates on other outcomes, such as maternal and perinatal morbidity, paediatric outcomes, and psychological or social well-being are still unclear. A multifaceted and long-term research is needed to understand the health effects of Cesarean section on future outcomes. A multifaceted and long-term research is needed to understand the health effects of Cesarean section on future outcomes.

The International Federation of Gynecology and Obstetrics (FIGO) is also concerned about the issue and has published its position[7]. With this position paper of the International Federation of Gynecology and Obstetrics, they ask for the help of governmental bodies, UN partners, professional organisations, women's groups, and other stakeholders to reduce unnecessary CSs, and therefore present the following conclusions and recommendations:

[5] Shirzad, M., Shakibazadeh, E., Hajimiri, K. *et al.* Prevalence of and reasons for women's, family members', and health professionals' preferences for Cesarean section in Iran: a mixed-methods systematic review. *Reprod Health* **18**, 3 (2021). https://doi.org/10.1186/s12978-020-01047-x.

[6] WHO. Statement on Caesarean Section Rates. Geneva: World Health Organization, 2015. URL: http://www.who.int/reproductivehealth/ publications/maternal_perinatal_health/cs-statement/en/ (date of access March, 2019)

[7] Visser G.H.A., Ayres-de-Campos D., Barnea E.R., et al. FIGO position paper: how to stop the caesarean section epidemic. Lancet. 2018; 392 (10 155): 1286–7. doi: 10.1016/S0140-6736(18)32113-5.

1. The delivery fees for physicians for undertaking CS and attending vaginal delivery should be the same, using a mean fee.
2. Hospitals should be obliged to publish annual CS rates, and financing of hospitals should be partly based on CS rates.
3. Hospitals should use a uniform classification system for CSs (Robson/WHO classification[8, 9] .
4. Women should be informed properly on the benefits and risks of a CS.
5. Money that will become available from lowering CS costs should be invested in resources, better preparation for labour and delivery and better care, adequate pain relief, practical skills training for doctors and midwives, and reintroduction of vaginal instrumental deliveries to reduce the need for CS in the second stage of labour.
6. The situation in very low-income countries requires specific attention, considering that access to CSs is still insufficient in rural areas, whereas CSs seem to rise inappropriately in some urban areas and can be associated with substantial maternal morbidity and mortality.

In addition, very few countries have guidelines on Cesarean section, with only a few of them containing indications that are absolute. One of these guidelines is the "Ceasarean birth NICE guideline 2021", United Kingdom[10] and "Caesarean Section. Guideline of the German, Austrian and Swiss Societies of Gynaecology and Obstetrics."[11] These Guidelines illustrate and expand on CS indications for placenta praevia, pelvic presentation, placenta accreta, mother to child transmission of viruses (HIV, hepatitis B and C, herpes), cephalo-pelvic disproportion and high body mass index. As for CS indications in the case of multiple pregnancy and preterm delivery, they recommend to looking up in respective guidelines.

Presenting the global data and trends in Cesarean sections, let's draw parallels with the current situation in Armenia. One of the issues on the agenda in the field of pregnancy and child care services is the sky-rocketing rate of Cesarean sections, which has more than doubled over the last decade (in 2000 - 7.2%, in 2005 - 11.2%, in 2008 - 15%, in 2010 - 18.9%,

[8] Betrán AP, Ye J, Moller AB, Zhang J, Gulmezoglu AM, Torloni MR. The increasing trend in Caesarean section rates: global, regional and national estimates: 1990–2014. *PLoS One* 2016; **11:** e0148343

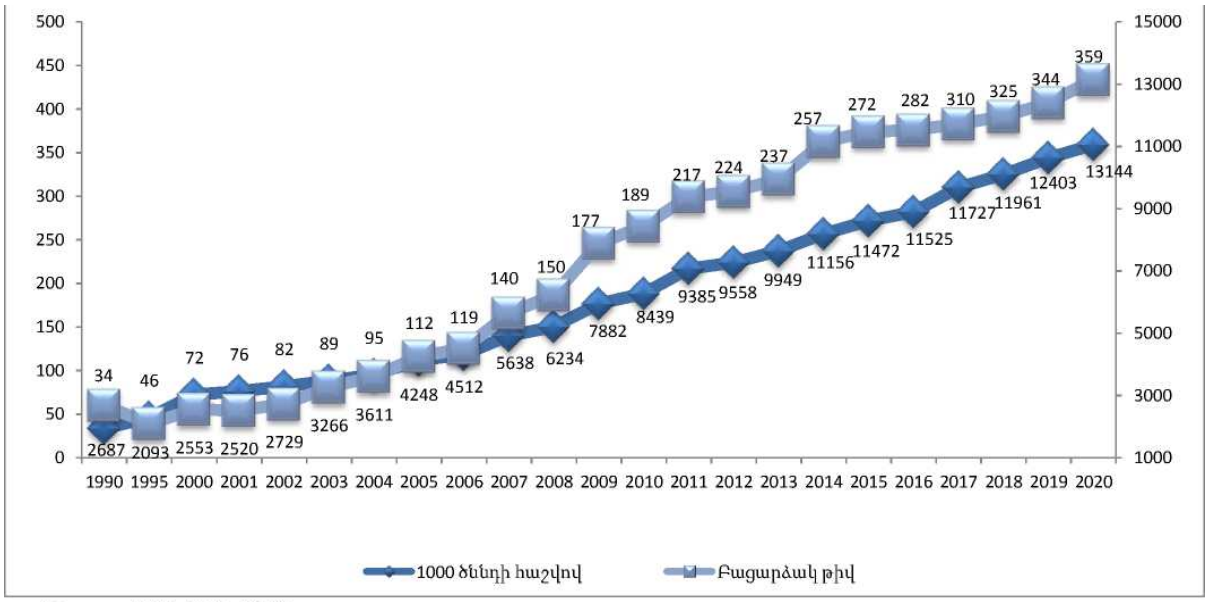
[9] Robson M. Classification of Cesarean sections. *Fetal Matern Med Rev* 2001; **12:** 23–39

[10] www.nice.org.uk/guidance/ng192

11 Louwen F, Wagner U, Abou-Dakn M, Dötsch J, Lawrenz B, Ehm D, Surbek D, Essig A, Greening M, Schäfers R, Mattern E, Waterstradt IC, Kästner R, Lütje W, Kranke P, Messroghli L, Wenk M, Kehl S, Schlößer R, Lüdemann K, Maier B, Misselwitz B, Heller G, Bosch A, Nielsen R, Rothe C, Sirsch E, Kalberer BS, Vogel T, von Kaisenberg C, Nothacker M, Hülsewiesche B, Allert R, Jennewein L. Caesarean Section. Guideline of the DGGG, OEGGG and SGGG (S3-Level, AWMF Registry No. 015/084, June 2020). Geburtshilfe Frauenheilkd. 2021 Aug;81(8):896-921. doi: 10.1055/a-1529-6141. Epub 2021 Aug 9. PMID: 34393255; PMCID: PMC8354346.

in 2015 - 27.2%, in 2018 - 32.5%, in 2021 - 37.5%, and in 2022 - 37.7%) [12] .

Figure 1. Cesarean sections, rate per 1000 live births and absolute number, Armenia, 1990, 1995 and 2000-2020[13]



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The rate of Cesarean sections varies considerably for Yerevan (from 34.4% in 2018 to 47.5% in 2021) and marzes (21.7% in 2018 to 28.4% in 2021) and by maternity hospitals. In tertiary level maternity hospitals, it ranges between 30-35% exceeding 40% in certain maternity hospitals[14]. An increasingly rising rate of Cesarean sections is a problem in many countries around the world. This is one of the pressing issues on the WHO agenda. In Armenia, as in many other countries, this problem has both objective and subjective reasons. Key objective reasons are the following[15]:

a. the advancement and use of medical technologies in obstetrical practice, allowing to diagnose maternal and fetal pathologies at an early stage. Timely identified critical situations often serve as direct indication for the lives of both the mother or the child (internal and external

[12] Statistical Yearbook "Maternal and Child Health", Armenia 2022, Yerevan. M 920 National Institute of Health after named after academician S. Avdalbekyan, MoH, 2022, 118 pages

[13] Armenia Health System Performance Assessment, 2021 D. Andreasyan, A. Bazarchyan, L. Bidzyan, N. Galstyan, A. Torosyan, A. Harutyunyan, R. Margaryan, S" Pahlevanyan-Yerevan RA MoH National Institute of Health after academician S. Avdalbekyan, CJSC, 2021, 101 pages.

[14] K. Saribekyan, D. Andriasyan, A. Bazarchyan, N. Davtyan, A. Isahakyan "Trends, problems, forthcoming strategic directions of mother and child health indicators", RA MoH, National Institute of Health after academician S. Avdalbekyan, 2020, page 63

[15] K. Saribekyan, D. Andriasyan, A. Bazarchyan, N. Davtyan, A. Isahakyan "Trends, problems, forthcoming strategic directions of mother and child health indicators", RA MoH, National Institute of Health after academician S. Avdalbekyan, 2020, page 63

hemorrhage during the pregnancy and labor, placenta previa, respiratory distress syndrome etc.), and therefore, require delivery through Cesarean section;

b. increased prevalence of certain pathological conditions, including extragenital and specific severe obstetrical pathologies, often require Cesarean delivery;
c. increasing rates of infection among pregnant women with HIV/AIDS and certain perinatal infections, in which case Cesarean section is performed;

d. overcoming infertility by using reproductive auxiliary technologies, in which case there are also high-risk primiparous women usually medically indicated for Cesarean section;

e. since 2006, the introduction of a new definition of perinatal period, when the outcome of pregnancy from week 22 started to be considered as birth, these premature deliveries often require Cesarean section;

f. the number of women with a medical history of one or more Cesarean sections, followed by uterine scar incompetency, which is also an indication for Cesarean delivery, keeps growing.

Individual subjective factors, too, contribute to the increase in Cesarean deliveries: c-sections performed with inadequate justification for a relevant indication aiming to avoid additional risks, and sometimes in the absence of an indication for Cesarean section, at the woman's request and/or insistence, etc. On the other hand, often doctors prefer to perform Cesarean section to avoid any potential complications in an attempt to safeguard themselves from encountering law enforcement bodies.

The availability of a differentiated and higher priced financial compensation mechanism also contributes markedly to the increased rate of Cesarean sections, whereby motivating both the medical institution and the doctor to perform a Cesarean section.

This conclusion is also shared by the findings of the research conducted by M. Tadevosyan et al. in the study “Factors contributing to rapidly increasing rates of Cesarean section in Armenia"[16].

According to the report, the amount of bonus payments to OBGYNs was 11-fold higher for CS than for natural births, indicating that OBGYNs have a very strong financial motivation to perform CS where it was not medically necessary. The qualitative study analysis revealed that financial incentives, maternal and/or her family's request /demand and lack of regulations could be contributing to increasing CS rates. While OBGYNs did not confirm that higher reimbursements for CS could be a factor in increasing CS rates, the policymakers have

[16] Tadevosyan et al. BMC Pregnancy and Childbirth (2019) 19:2 https://doi.org/10.1186/s12884-018-2158-6.

observed a potential link between the remuneration mechanism and increasing CS rate. The quantitative phase of the study confirmed the policymakers' concern.

To solve this problem, a much deeper dive should be taken into the situation and a set of measures to address its root causes. For example, such can be the development of a new mechanism for reimbursement of Cesarean sections and remuneration to healthcare providers, or implementation of a monitoring and evaluation system for individual cases to evaluate its validity and draw subsequent conclusions.

Hence, an alarming growth of cesaran section incidents is observed worldwide. The medical community cannot counteract to this challenge on its own. Concerted joint actions with government agencies, health insurance industry and women's groups need to be taken immediately to reduce unnecessary growth of CSs without medical indications (or at the request of women/their families).

This Report encapsulates the methodology of exploring root causes underlying C-sections in Armenia, main findings, and subsequent recommendations.

Background

Cesarean section (CS) is one of the most common surgical interventions in the world and its prevalence continues to grow. As with any surgery, Cesarean sections are associated with short- and long-term health risks which can extend many years beyond delivery and affect the health of the woman, baby and future pregnancies.

According to data of the World Health Organization (WHO), the rate of CS worldwide is 21.1%. The top five countries with the highest CS rate worldwide are: Dominican Republic (58.1%), Brazil (55.7%), Cyprus (55.3%), Egypt (51.8%) and Turkey (50.8%). The countries with the lowest CS rate around the world belong to Africa: Chad (1.4%), Niger (1.4%), Ethiopia (1.9%), Madagascar (2%) and Cameroon (2.4%), Timor-Leste (3.5%) in Asia and Haiti (5.4%) in Latin America. In Europe, the highest CS rate was found in Romania (46.9%), and the lowest in Netherlands (14.9%), Finland, Iceland and Norway (15%). The reported CS rate in our region and in CIS countries are as follows: Iran - 48%, Georgia - 46.6%, Armenia - 37.5%, Belarus - 29.6%, Russia - 20.8%, Kazakhstan - 18%, Kyrgyzstan - 8.3%.

Numerous factors contribute to the increased rates of CS. The snowballing problem calls for a much deeper analysis of situation and deliberation of a set of actions to address its prime causes. To this end, by the initiative of the RA MoH and the UN Population Fund, research has been conducted in an attempt to identify root causes of growing CS rates.

With joint efforts of the “Advanced Public Research Group" NGO and experienced obstetrician-gynecologists of Armenia, a sociological survey was conducted in 2022 with a combination of qualitative and quantitative methods. Quantitative (400) and qualitative interviews (including in-depth (18) and focus group (20) interviews) were conducted with women who gave birth in the last 3 years, in-depth interviews with doctors from a number of selected medical facilities (including obstetrician-gynecologists (18), related specialists: ophthalmologist, cardiologist, angiologist, neonatologist (12)), quantitative self-administered surveys (158) with the participation of doctors from different medical institutions of Armenia, as well as a study of medical cards of women who gave birth with CS in the last 3 years (264).

Key findings of the study are the following:

- According to qualitative research data, women mostly receive prenatal care and give birth at medical facilities located in their place of residence, but sometimes due to lack of respective conditions (specialists, technology and equipment) they have to give birth or receive prenatal care in other medical facilities of the regional center or the capital. According to focus group interviews, the majority of women prefer Women's

Consultations adjacent to inpatient facilities so that the prenatal doctor and the doctor managing the delivery is one and the same person. Women's Consultations at district polyclinics (not affiliated with inpatient facilities) are mainly used by women who are familiar or kin to a doctor, or avoid additional travel expenses, and if they do not have a complicated pregnancy or comorbidities. Reasons for avoiding district polyclinics are associated with inadequate equipment, lack of professionalism of health care providers. The choice of clinics is based on the choice of doctor.

- Qualitative data obtained from doctors indicate that 25-30% of deliveries take place through Cesarean sections. Quantitative survey findings show that 44.4% of obstetrician-gynecologists perform Cesarean section independently, while 27.8% participate in the Cesarean section but do not perform it independently.
- According to qualitative surveys, the delivery plan is developed mainly at 35-37 weeks of gestation. The results of screenings and tests conducted over gestation period, as well as the opinions/conclusions of respective specialists, inform the decision on the delivery plan. Often, especially in regional medical centers, a pregnant woman is referred to a Cesarean section when the ultrasound examination reveals the umbilical cord wrapped around fetus' neck. To develop a delivery plan at primary health care level, training should be conducted with respective specialists at the level concerned (especially regional) to update their knowledge and familiarize with modern approaches, which will help them draw appropriate conclusions from the tests and examinations and make an adequate decision on the delivery mode.
- As the analysis of medical cards revealed, 81.4% of CS indications were obstetrical-gynecological, 46.8% - fetal, and 24.2% - non-obstetrical (each case may have more than 1 indication). In the case of obstetrical indications, most frequently cited were "Uterus scar" and "Severe preeclampsia". 31.0% of doctors participating in a quantitative survey, reported about their experience of managing vaginal delivery subsequent to Cesarean section. Thus, 69.0% of doctors avoid natural labor process after uterus scar is confirmed. Findings of quantitative interviews with women revealed that 1.9% of women who gave birth by Cesarean section, had subsequent vaginal birth, 48.1% had Cesarean section, and 50% did not give birth since. In response to the question on preferred mode of delivery after the Cesarean section, 20.8% of women who gave birth with Cesarean section indicated vaginal birth, 58.4% - Cesarean section, and 20.8% would not want to be give birth. *8.5 percent of women who gave birth vaginally was willing to replace it*[17] with Cesarean section, where the majority of them explained that they didn't want to endure labor pain, lacerations of birth canal

[17] Question: "If the time is reversed, would you prefer to replace vaginal birth with C-section?"

and deformation of genitals, to experience the stressful atmosphere of maternal hospital and the anxiety. *However, 58.4% of women who delivered with Cesarean section expressed preparedness*[18] to have vaginal birth instead, and most frequently cited justifications were that "the complications of Cesarean section outweigh those of normal vaginal delivery", "women get health problems as a result of Cesarean section", "I wouldn't want to have a scar on my abdomen." Thus, although 58.4% of women with CS would prefer not having a Cesarean section, 58.4% of them still plan to have CS delivery in the future.

- In the case of mild preeclampsia, 36.7% of the doctors participating in a quantitative self-administered survey, due to lack of appropriate conditions, perform C-section sometimes or often.
- During the last 3 years, about 45% of the interviewed doctors managed up to 10 vaginal births with pelvic presentation, 3% - 10-19 births, about 1.5% - 20-29, and around 3.8% - more than 30 births. Thus, over the last three years, approximately half of the doctors surveyed did not manage a labor with pelvic presentation. Vacuum extraction has been performed by 31 percent of the interviewed doctors, most of them running 1-2 such cases. Only 21% of the surveyed doctors reported fully mastering vacuum extraction skills and having performed it independently. 10.8% of surveyed doctors indicated one or two attempts of forceps extraction delivery over the last three years. During qualitative interviews regarding the experience of managing complicated labor, doctors pointed out that not only the medical staff was untrained or unexperienced (content, quantity and knowledge/ skills wise), but also the lack of modern technical equipment would be a hindrance.
- According to qualitative surveys, no single approach to the indications for Cesarean section exists. Consequently, doctors avoid taking risks as they realize that negative outcome would leave them defenseless, therefore they prefer to perform Cesarean section instead.
- 24.2% of medical cards show that Cesarean sections have been performed based on indications of related specialists, rather than obstetricians, as reported by 27.2% of the surveyed physicians. However, qualitative interviews bring into light the fact that in a number of cases the doctors find Cesarean section avoidable. In the case of CS referral with non-obstetrical CS indications, it is crucial to verify it with other specialists rather than relying on just one related medical specialist's conclusion. Only 36.7% of obstetrician-gynecologists who participated in quantitative surveys are referring the

[18] Question: "If the time is reversed, would you prefer to replace a CS with vaginal birth?"

expectant mother to another specialist to get a second opinion to cross-check the indication of a related specialist.

- 4.4% of respondent doctors stated that they would accommodate the request of the pregnant woman and perform a Cesarean section. Surveys conducted among women revealed that the majority of them gave preference to vaginal delivery. Examination of medical cards did not expose any case of Cesarean section at the expectant mother's request, since it was not directly indicated in the medical card. According to quantitative data obtained from women, the cause of women's having Cesarean section lie in their condition /obstetrical-gynecological problems (43.2%), fetal indications (30.1%), indications of a related specialist (19.9%) and the wish of the woman/relatives (6.8%). *Given the magnitude of statistical error, it should be stated that the rate of Cesarean sections without indications is positioned at 8–10%.*
- The decision on delivery method is highly influenced by the "Prenatal care provider" (44.1%), "Doctor managing the delivery" (36.7%), followed by "Husband" (5.3%), "Parents/relatives" (4.2%), "Related doctor" (5.6%), "Web articles, professional websites, books" (2.2%), "Friends/acquaintances" (0.4%), and "Social media" (0.4%).
- Research data reveals that not all expectant mothers attend Maternity School training courses. Although 86.3% of the interviewed women agree, to this or that extent, that the courses will have an impact on the choice of delivery method, however, to the question *"Would you like to attend preparatory lessons personally or with your spouse prior to delivery?"* was answered positively by 59.3% of the respondents, 35.8% responded negatively, and 5.0% had difficulty to answer.

Based on key findings, a number of recommendations have been made, which are presented below:

- ***To elaborate and introduce (national) guidelines and protocols for labor management in pelvic presentation, large fetus and after Cesarean section; clarify the conditions of vaginal delivery, develop new procedures (for pathologies where national guidelines are missing) on the basis of existing obstetrical clinical guides (for management of preeclampsia, intrauterine growth restriction, preterm deliveries, multiple gestation etc.), with clear CS indications set forth;***
- ***Communicate with the National Association of Ophthalmologists recommending to develop and present a Pregnancy Management Guide for women with visual impairments;***
- ***The guidelines and protocols should contain clear formulations and ensure legal protection of doctors;***

- ***The protocols should be mandatory for all doctors and medical centers functioning in the Republic of Armenia;***
- ***Within the auspices of the Obstetrics and Gynecology Council of the RA Minister of Health, to establish a working group for the development of guides and protocols and monitor their implementation;***
- ***Highlighting the pivotal role of the primary healthcare in selecting the delivery method, it is of utmost importance to conduct a training with the healthcare providers of the level concerned (especially from regions) aiming to update their knowledge and introduce to robust methodologies. To this end, it is vital to collaborate with the Chair in charge of continuous professional development to arrange regular training courses aiming to update primary health care providers' knowledge and skills;***
- ***To conduct regular training courses with prenatal care providers, which will be not only theoretical, but also practical to inform about changes in sector-specific approaches, while coaching them into complicated childbirth management skills (simulation courses);***
- ***To retrofit medical institutions with respective equipment, conditions and staff, who will ensure successful process of complicated deliveries with informed obstetrician-gynecologists;***
- ***To reduce the number of Cesarean sections performed at the request of women and their families, it is recommended to prioritize awareness activities and to consider the possibility of financing such cases beyong the State order. It will allow all doctors to have a single approach, rather than accommodating the desire of the pregnant women / relatives;***
- ***To maximize the attractiveness of Maternity Schools for pregnant women. Training will be conducted online where necessary. On the one hand, it will tackle the challenges related to time and distance, and on the other hand, address the problems engendered by the mentality;***
- ***To conduct similar training courses for the spouses of pregnant women, as well as for other family members (mother-in law, etc.). In this specific case, online courses will produce higher outcomes if the anonymity of participants is ensured;***
- ***To implement wide-range awareness raising activities, using media, television, Internet or print media resources. From this perspective, broadcasting a TV program series "Mothernity School" by national TV on weekly basis could have***

positive outcomes by channeling necessary information to the target audience of the society;

- ***In this context, it is equally important to organize awareness training courses for journalists to train them how to intelligibly and justly present topics related to pregnancy and childbirth processes;***
- ***Involvement of prenatal psychologists within or beyond the scope of Maternity School can improve mental state of pregnant women, and consequently the overall process of childbirth. Respective specialists will deal with the issue in collaboration with an obstetrician-gynecologist and the OBGYN will no longer bear an additional burden;***
- ***Introduce changes in the principles of financing the field of obstetrics, for medical staff, especially obstetrician-gynecologists, providing the same fee per one childbirth, regardless of delivery method (vaginal or CS);***
- ***Specific focus should be placed on particularly first-time deliveries to avoid "Scar on uterus" diagnosis and future CSs.***

PART 1. Methodology

To identify the prevalence of Cesarean sections in Armenia, the “Advanced Public Research Group” NGO has deployed triangulation of the qualitative and quantitative methods of information collection.

A. Qualitative methods are the following:

1. In-depth interviews with women who delivered with Cesarean section;
2. In-depth interviews among doctors;
3. Focus group discussions with women who gave birth in the last three years.

B. Quantitative methods are the following:

1. Face to face interviews with women who gave birth in the last three years, regardless of the mode of delivery;
2. Quantitative surveys / questionnaires among doctors;
3. Study of medical cards of women who gave birth by Cesarean section in the last three years.

Research instruments: the questionnaires, have been developed in compliance with research methodology, and agreed with the Ministry of Health and the contracting party (see attached in the Appendix).

- Instrument 1. Standardized questionnaire for quantitative survey with women
- Instrument 2. Standardized quantitative questionnaire to be self-administered by doctors
- Instrument 3. Questionnaires for the study of medical cards
- Instrument 4. Questionnaires for qualitative interviews with doctors
- Instrument 5. Questionnaires for qualitative interviews with women
- Instrument 6. Questionnaire of focus group discussions with women

Survey sample

1. To conduct in-depth interviews with **women who had Cesarean deliveries in the last three years**, the following pivotal criteria have been placed at the core of the sampling:

   (1) **Place of residence**: Participants were recruited from all regions of Armenia, where the regions were divided according to their distance from Yerevan. Accordingly, three groups were identified: Yerevan, nearby (Kotayk, Armavir, Aragatsotn, Ararat) and remote regions (Tavush, Shirak, Syunik, Vayots Dzor, Gegharkunik, Lori).

   (2) **Participant age:** Two age-based groups have been established: up to 35 years and above 35.

As a result, 6 groups were formed. To make information more credible, 3 interviews with each group were conducted. This resulted in 18 in-depth interviews with women who delivered with Cesarean section.

2. Within the scope of the method "**In-depth interviews among doctors**", the project proposal initially envisaged interviews only with obstetrician-gynecologists, however, over the course of project implementation additional need for interviewing medical specialists arose, such as an angiologist, cardiologist, ophthalmologist, neonatologist.

As a result, 18 obstetrician-gynecologists and 12 subject matter specialists were selected from 8 Yerevan-based clinics and those from 4 regions of Armenia. From each clinic, the participating doctors were selected according to their competence, by the method of snowball. As a basis for competence evaluation, the following was considered:

- Work experience of the doctor (at least 10 years)
- Other doctors' assessment (according to the method of snowball, surveyed doctors indicated the name of their other colleague and assessed the degree of competence)
- Self-assessment of their competence/well-awareness about the subject matter (most of the surveyed obstetrician-gynecologists are surgical doctors, managers of obstetrical departments, etc.);

Of the 18 interviewed obstetrician-gynecologists only 3 had not provided prenatal care, instead they managed deliveries and performed Cesarean sections, 4 of them managed both the pregnancy and the delivery, but did not perform Cesarean section independently, and 11 were in charge of prenatal care and delivery, in addition to being surgical doctors. Professional experience of the doctor's surveyed, was 20 years, with the minimum being 10 years and maximum - 35 years and more.

Selection of obstetrician-gynecologists was made based on Yerevan, regional city and village, and subject matter specialists - Yerevan and regional city distinction. Selected clinics are the following:

- Yerevan: RIPOG, Erebuni MC, Astghik MC, Beglaryan MC, Grigor Narekatsi MC, Surb Grigor Lusavorich MC, Shengavit MC, RCMCHP
- Regions: Shirak - Gyumri MC and Akhuryan's Mother and Child Center, Tavush - "Ijevan MC" CJSC, Ararat - Ararat MC, Artashat MC, Armavir - Echmiadzin MC.

The following three key criteria were applied for selection of clinics:

1. Settlement (Yerevan, near Yerevan and remote region/marz)
2. Involvement in Robson's pilot program (in Yerevan, the clinics where Robson's pilot program was rolled-out, have been selected);
3. Number of performed C-sections (clinics with higher incidence of C-sections and those with relatively lower incidence of C-sections were selected).

The duration of the survey with subject matter specialists was 45 minutes, and with related specialists - 20 minutes.

3. **The sampling of focus group discussion** was developed based on the following criteria:

- Place of residence: Yerevan, regional city, village
- Birth method: Cesarean section, natural delivery
- Age of the woman at childbirth: above 35 and younger than 35
- Primiparous or not primiparous

As a result, 20 focus group discussions were organized and conducted with women who gave birth in the last three years.

Selection of women was based on randomized lists prepared by medical institutions. Each group had 5-7 women participants. Mean duration of group discussions was 115 minutes.

4. **Face-to-face interviews with women who gave birth in the last three years.** To conduct quantitative interviews regardless of the delivery mode, the sample of quantitative interviews was estimated. The sampling was made on the basis of the total number of women who delivered in the last three years, with respective regional distribution. In the case of such distribution, the margin of error is +-4.8%. Taking into account the peculiarities and similarities of the subject matter, in the case of a 95% degree of confidence, the size of given error is sufficient for the reliability and justification of the data.

Table 1. Sample of women participating in quantitative surveys		**Yerevan**	**Regions**	**Total**	**Sample**
	2019	**21054**	**15024**	**36078**	81
	2020	**21656**	**14974**	**36630**	84
Birth	**2021**	**21643**	**14665**	**36308**	83
Total	**3 years**	**64353**	**44663**	**109016**	**248**
	2019	**8340**	**3905**	**12245**	48
	2020	**9112**	**3969**	**13081**	51
Cesarean	**2021**	**9380**	**4075**	**13455**	53
Total	**3 years**	**26832**	**11949**	**38781**	**152**
Sample					**400**

With the mediation of the RA MoH and by the support of the clinics, women's database was obtained, while adhering to the principles of women's anonymity and personal data protection. 400 women were randomly selected according to preliminarily developed sampling, and they voluntarily participated in the survey. Mean duration of interviews was 35 minutes.

5. **Quantitative interviews / questionnaires among doctors** were conducted through respective link of questionnaire referred by the MoH. This method was not planned under the project proposal and therefore, is an additional method. 158 health care providers from Yerevan and RA regional MCs participated in the survey. Mean duration of the survey was 8 minutes.

6. A survey sample was also prepared to conduct an **examination of the medical records** of women who had Cesarean deliveries over the last three years. 8 clinics in Yerevan and 3 regional clinics were selected: Gyumri MC, Ijevan MC and Artashat MC, and medical cards of 8 women with CS delivery from each medical center within the period of 2019, 2020 and 2021 were selected. As a result, 192 medical cards from Yerevan and 72 medical cards from regions were examined, maintaining the principles of anonymity and personal data protection.

Table 2. Sample of the medical cards studied

Region/Marz	Date	Sample of Cesarean cards
Yerevan	2019	64
	2020	64
	2021	64
Total	**3 years**	**192**
Region/Marz	2019	24
	2020	24
	2021	24
Total	**3 years**	**72**
Total		**264**

Field work implementation and analysis. Field work was implemented in collaboration with the Advanced Public Research NGO staff and professional doctors. Quantitative survey, self-administered questionnaire and medical cards were completed through sociological survey methodology using electronic technologies. Data was analyzed using an SPSS statistical package.

In-depth interviews with doctors have been conducted by expert doctors via face-to-face meetings. In-depth interviews with women who had C-section, were conducted by APR, qualitative survey team, through face-to-face meetings. Online focus group discussions were organized by APR qualitative interviewers' team, through Zoom platform, considering cost effectiveness, higher level of flexibility and comfort for participants and the possibility of overcoming geographical barriers. Expert doctors, project sociologist and team lead were

following the overall progression of discussions. Findings of qualitative interviews have been transcribed, and contextual analysis with main categories was conducted.

PART 2. Survey findings

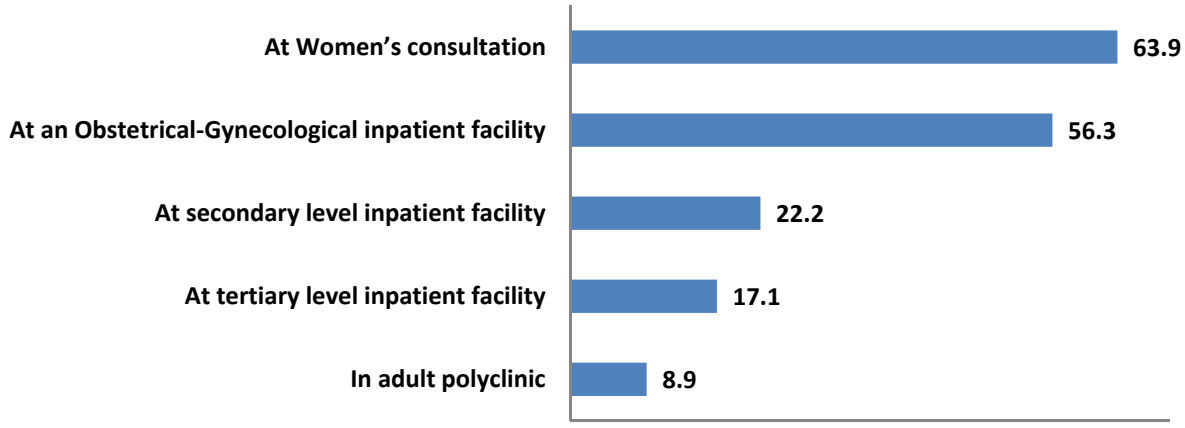
SECTION 2.1. Findings of interviews conducted with doctors

2.1.1 Cesarean section practices

Qualitative and quantitative interviews were conducted with doctors. During qualitative interviews, doctors (obstetrician-gynecologists and related / medical specialists) answered a number of questions about their activity, knowledge and attitude toward Cesarean section. In addition to doctors selected by standardized sampling, obstetrician-gynecologists from various healthcare institutions of the country were also involved to complete the quantitative self-administered questionnaire.

It is a known fact that pregnancy management and labor are different loops of a single process that are closely interlinked. As the qualitative interviews show, in certain cases when women apply to a medical facility for prenatal care, they already have a “preferred” doctor to manage both the pregnancy, as well as the delivery. However, there are cases when the pregnancy is managed by one doctor, and the delivery - by another. This is conditioned both by the peculiarities of medical facilities, as well as by the course of pregnancy and the condition of the pregnant woman. Sometimes lack of appropriate conditions (specialists, equipment and technologies) forces pregnant women to give birth or receive pregnancy care at another medical facility of either the regional center or Yerevan (mainly tertiary level). This is specifically true for high-risk pregnancies, which can entail both severe obstetrics and extragenital pathologies. A number of clinics of the country have a rotation system in place to provide duty services at both inpatient, as well women's health care facilities, as a result of which the duty doctor attends the childbirth. However, there are also many cases when pregnant women’s delivery is attended by the doctor of their choice, which was labeled as “ordered/on demand” delivery during the interviews. 49% of 158 obstetrician-gynecologists who participated in quantitative surveys reported to work in only one medical institution. Since 51% has indicated more than one institution, and the question "What institution do you work" received 266 responses, their distribution exceeded 100%. Hence, those working in the Women’s Consultations made up 63.9% of respondents, 56.3% in the obstetrical-gynecological inpatient, 22.2% in the secondary level inpatient, 17.1% in the tertiary level inpatient, and 8.9% in the adult polyclinic.

Figure 2. Where do the interviewed doctors work?



In addition, 5.1% of obstetrician-gynecologists noted that as an obstetrician-gynecologist, s/he was more engaged in gynecology, 27.2% in obstetrics, and 67.7% in both areas equally. The results of quantitative and qualitative interviews suggest that the doctors basically manage both the pregnancy, as well as the labor. Sometimes, when prenatal health care provider does not manage the delivery, s/he can still attend the delivery as an assistant. According to quantitative data, 84.8% of respondents provide prenatal care at women's health care facility, whereas 15.2% does not. 4.4% of quantitative survey respondents do not manage labor. In the case of 48.1% of total respondents, the number of births per year is higher than that for pregnancy management.

During qualitative and quantitative interviews, the question on the ratio of pregnant women giving birth with Cesarean section has been discussed. Thus, 105 of the quantitative survey participants were able to indicate the number of births managed and Cesarean sections they performed on annual basis (we should note that 53 people also manage labor or perform Cesarean section, they just found it difficult to answer the question). 5.7% of respondents perform more Cesarean section than manage childbirth over one year, 2.9% only perform Cesarean section, 16.2% - Cesarean sections make up to 51-100% of births, 3.8% - about half of births, 18.1% - Cesarean sections make up 31-49% of births, 44.8% - 6-30%, and 8.6% do not perform CS.

Table 3. Share of Cesarean sections in the number of deliveries managed on annual basis

	n=105	n=158
C-section is over 100% of births	5.7%	3.8%
C-section is 100% of births	2.9%	1.9%
C-section is 100- 51% of births	16.2%	10.8%
C-section is 50% of births	3.8%	2.5%
C-section is 49- 31% of births	18.1%	12.0%

C-section is 30- 6% of births	44.8%	29.7%
C-section is 0% of births	8.6%	5.7%
Difficult to answer	-	33.5%
Total	100%	100%

According to most obstetrician-gynecologists who participated in qualitative interviews, about 25-30% of the births they managed were Cesarean sections, but there were also respondents who were performing more Cesarean sections than managing natural births (head of the obstetrician-gynecological service or department head, etc.). It should be noted that based on quantitative survey, 38.0% of total respondents (158) was a surgical doctor, 34.8% - assistant or 2nd surgical doctor, 27.2% does not participate in a surgery. The respondents were asked whether they performed Cesarean section themselves or jointly. 44.4 percent of respondents were found to be performing it independently.

Figure 3. When performing Cesarean section, you...

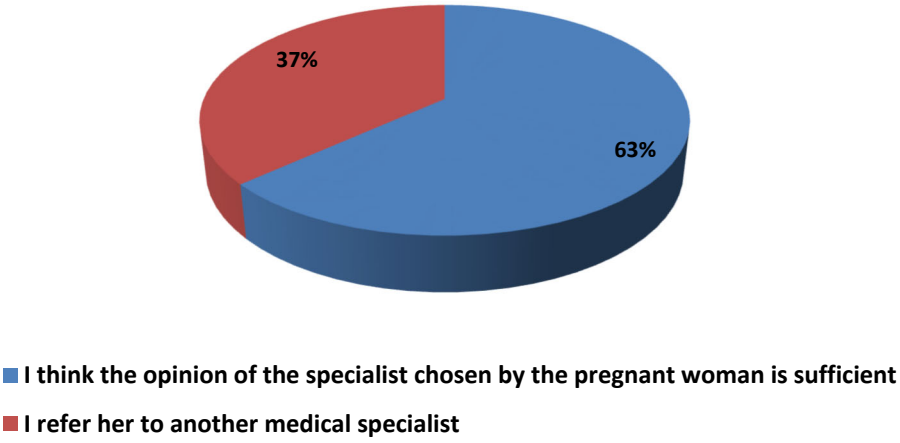
The progress of women's pregnancy and decision on the delivery plan highly depends upon the approach shown at primary care level. During qualitative interviews, the obstetrician-gynecologists provided a detailed description of the process of preparing the delivery plan. It is prepared in 35-37 weeks of pregnancy by the obstetrician-gynecologist providing prenatal care and discussed with the pregnant woman and /or her relatives. **The opinions / conclusions of related medical specialists also serve as guidance for making the delivery plan.** Often, especially in regional medical centers, a pregnant woman is offered a Cesarean section when the ultrasound examination reveals the umbilical cord wrapped around fetus' neck. According to most respondents, such situations should be ruled out because both umbilical cord wrapping and the change of fetal presentation can occur in the prenatal period,

before 40 week. Therefore, predisposing a pregnant woman into Cesarean section in 36 or 37 weeks of pregnancy may be irreversible in terms of determining the delivery method.

> *"…ultrasound doctors should, at state level, be forbidden to tell the pregnant women about wrapped umbilical cords…. Wrapped umbilical cord is stated as an indication for Cesarean section in most of the cases" (obstetrician-gynecologist, region).*
>
> *"…out of 10 births, 4 have wrapped umbilical cord, but it's not an indication for Cesarean section" (obstetrician-gynecologist, Yerevan).*

Where obstetrical or fetal indications are present, obstetrician-gynecologists usually consult with senior medical specialists or, when necessary, consult with a Concilium. Discussions are held even in the case of non-obstetrical indications, both with the head of obstetrical-gynecological units, as well as with related medical specialists. Sometimes the doctors refer or direct the pregnant women to other medical specialists aiming to crosscheck and verify examination results of related specialists. Quantitative interviews found that 36.7% of respondents acted in the above manner.

Figure 4. In the case of non-obstetrically indicated Cesarean section ...



Essentially, for CS with non-obstetric indications, it is advisable to have more than 2 opinions to verify the validity of the related specialist's position.

The delivery plan, as assured by the majority of respondents, is not determined single-handedly. At the primary care level, the delivery plan is developed in agreement with related specialists, if necessary, as well as a result of consultations with those in charge of the level concerned. According to in-depth interview participants, the role of inpatient doctor on duty that day and the head of service is crucial when it comes to determining the delivery mode.

"There are cases when the doctor indicates for Cesarean, but…the head of department refuses it….and the plan changes" (obstetrician-gynecologist, Yerevan).

Along the lines, the respondents highlighted the significance of the pregnant woman's and her relatives' request, which can sometimes be influenced by the Maternity Schools operating in the Women's Consultations and the prenatal doctor.

Thus, according to qualitative surveys, the delivery plan is developed primarily at 35-37 weeks of gestation. The results of screenings and tests conducted during gestation period, as well as the opinions/conclusions of respective specialists serve as a guidance for developing the delivery plan. Often, especially at regional medical centers, a pregnant woman is offered a Cesarean section when the ultrasound examination reveals the umbilical cord wrapped around fetus' neck and some of them are referred to Yerevan. To develop a delivery plan at primary healthcare level, training should be organized with respective specialists at a concrete level (especially regional) to update their knowledge and familiarize with modern approaches, which will help them draw right conclusions from the tests and examinations and make adequate decision on the delivery mode. In addition, in the case of CS referral with non-obstetrical indications, it is crucial to verify it with other specialists rather than relying on just one related medical specialist's conclusion. As revealed by the research, only 36.7% of respondents behave in that manner. High premium was placed on the role of Maternity Schools, which will be addressed in further sections of the report.

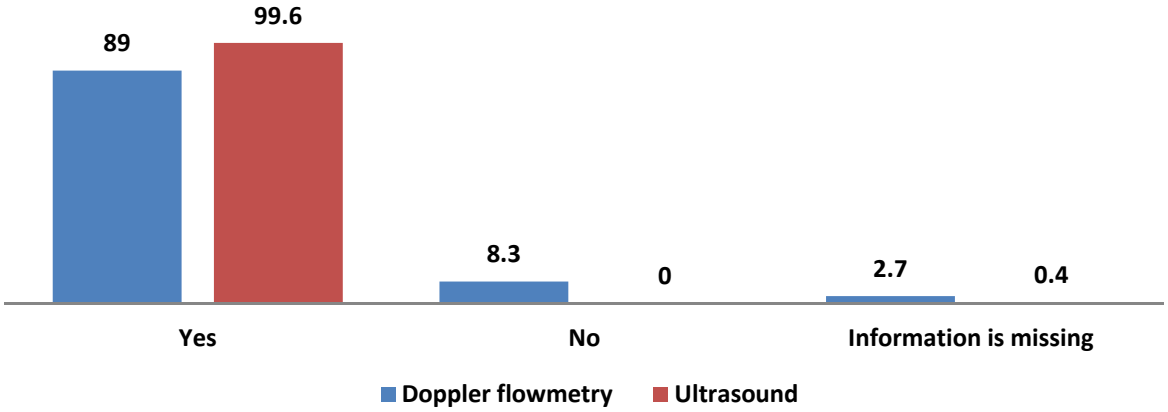
2.1.2. Further details on the process of performing Cesarean sections

This section encapsulates findings of studied medical cards of women who had a Cesarean delivery.

13.6% of women who had a Cesarean section have been hospitalized during pregnancy. The most frequently cited reasons include threat of miscarriage and preterm birth, followed by chronic hypertension, acute respiratory infection, pneumonia, acute exacerbation of cholecystitis, or removal of the appendix or appendectomy.

6.8% of examined cards contained cases of COVID-19 during pregnancy. During pregnancy, the pregnant women underwent necessary instrumental studies.

Figure 5. Has doppler flowmetry and ultrasound examinations been conducted?



Most of the pregnant women underwent instrumental (equipment-based) examinations, however, only 11.0% of the cards reflect not readily available (hard-to-access) examinations, and 3.4% of medical cards contain information about case conferencing (concilium).

Figure 6. Has any hard-to-access examination and case conferencing been conducted?

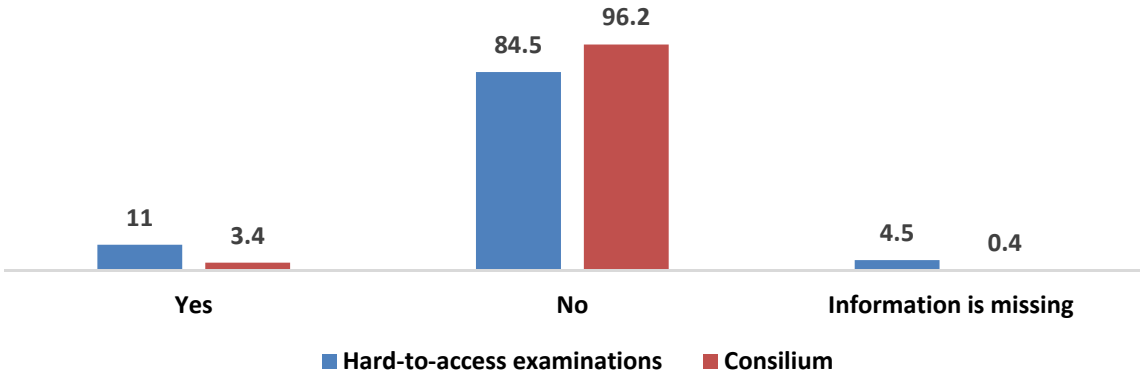


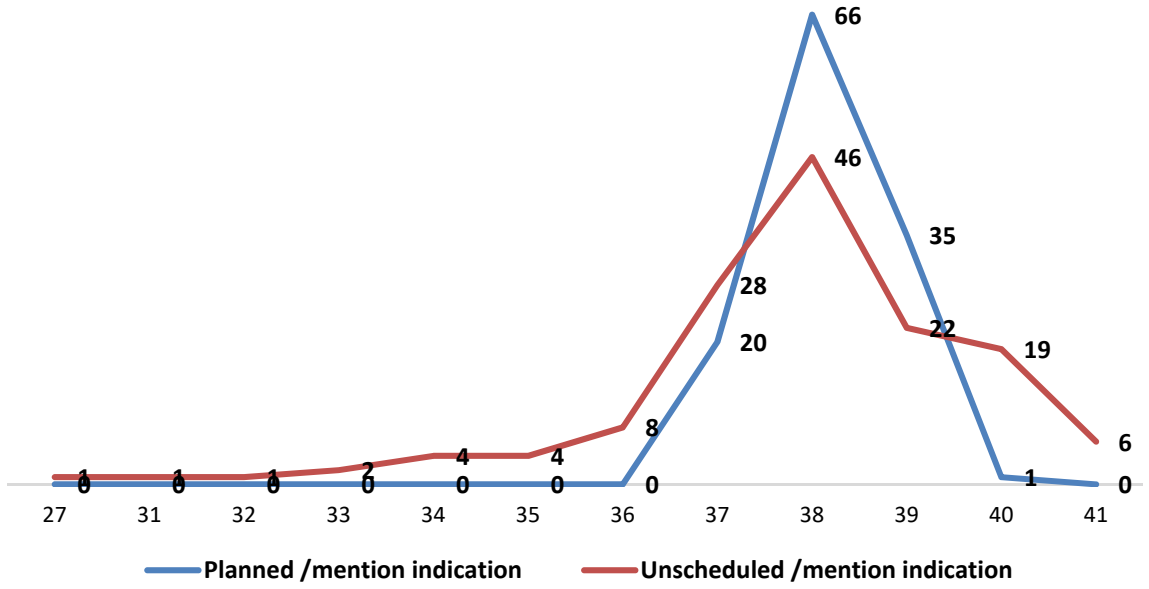
Table 5 below shows the ween in gestation period when Cesarean section was performed. In 7.1% of Cesarean sections the fetus was premature, and in 92.1% of cases - mature.

Table 4: Gestation period	Quantity	Percent
27	1	0.4
31	1	0.4
32	1	0.4
33	2	0.8
34	4	1.5
35	4	1.5
36	8	3

37	48	18.2
38	112	42.4
39	57	21.6
40	20	7.6
41	6	2.3

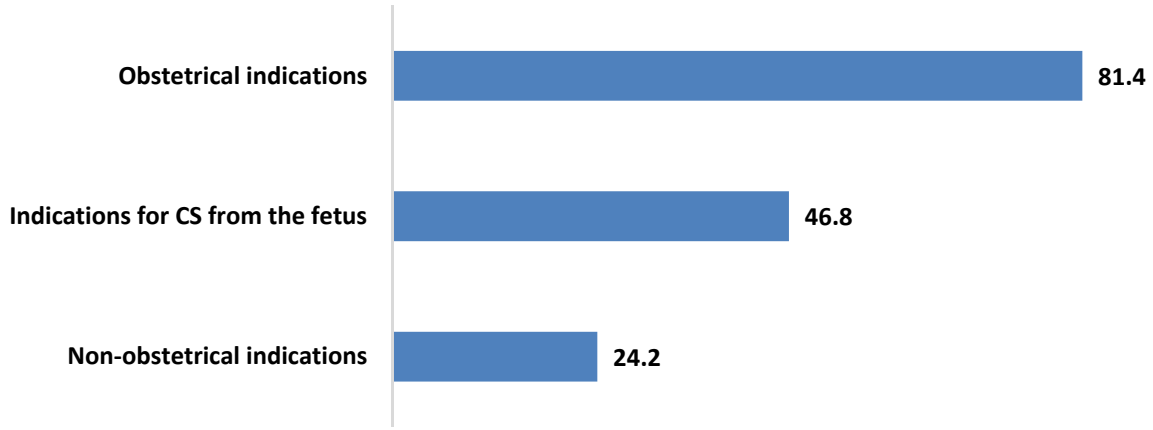
All Cesarean sections performed before 36 weeks of gestation have been unscheduled. The gestation periods of all scheduled and unscheduled Cesarean sections are presented below:

Figure 7. Gestation periods of scheduled and unscheduled c-sections



Findings of medical cards' examination revealed that 81.4% of CSs have been performed on the basis of obstetric instructions, most common of which included uterus scar, age of pregnant woman, premature rupture of membranes, severe preeclampsia, stalled labor due to cervix dilation stop, placental or uterus pathologies, as well as infertility. Since the medical cards contain more than one indication, the percentage of responses received exceeds 100 percent. Thus, 46.8% of cases referred to fetal indications, most common of which were breech presentation, transverse position, intrauterine growth restriction, large fetus, twins. Most frequently cited non-obstetrical indications (24.2%) included vision impairments, varicose veins, cardiological issues etc.

Figure 8. Cesarean section indications, according to medical card examination



The condition of infant averaged 8.17 by Apgar score, with most frequently indicated outcome being 8. There were only one "1", "2", "5", and two cases - "6". 3.8% cases of the examined cards - "7", in 66.3% - "8", and in 28.0% - "9".

In 2.3% cases of the examined cards, Cesarean sections were performed with general anesthesia, and in 97.7% of cases - with regional / epidural anesthesia.

In 61.7% of cases the surgery duration from the beginning to extraction of the baby lasted up to 5 minutes, in 25.0% cases - 5 to 7 minutes, and in 13.3% cases - more than 7 minutes.

The surgery lasted 60 minutes on average, with most frequent duration being 60 minutes, the shortest - 20 minutes, and the longest - 160 minutes. During the operation, average blood loss amounted to 583 grams, where the most common indicator was 500 grams, the smallest amount - 400 grams, anf the heaviest amount - 1500 grams.

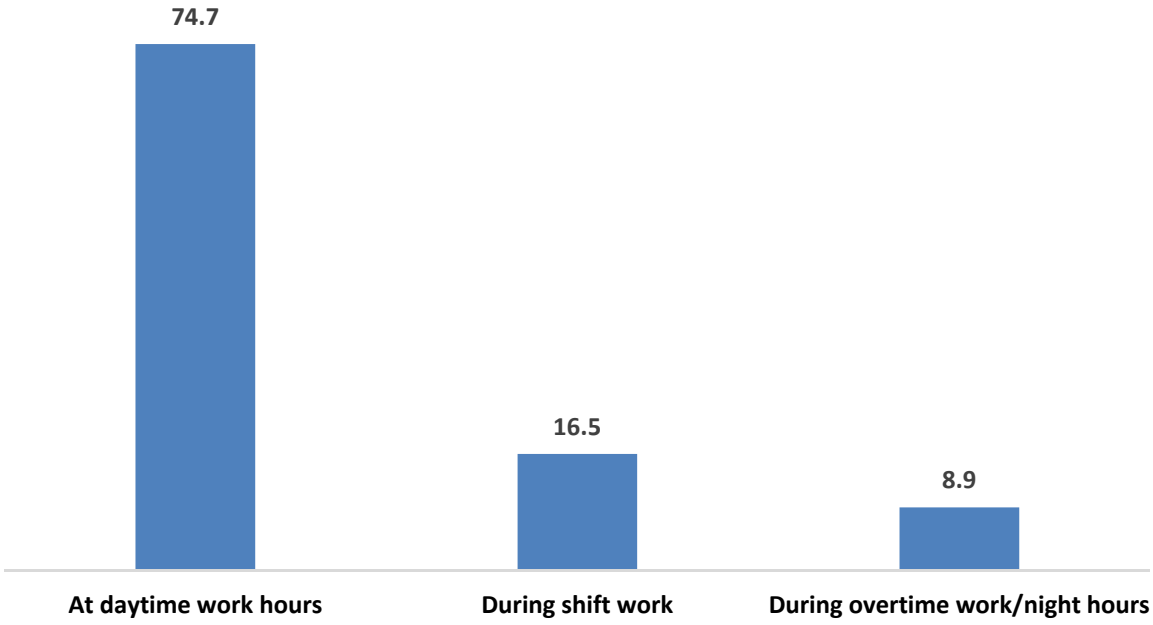
There have been complications in 3.8% of the surgeries. These include placental pathology, resection of adhesions, necrosis of the myomatous node of the uterus or myomatosis of the incision area, intraoperative bleeding. In another 3.8% of cards, postoperative complications are described, which include post-puncture pain following spinal anesthesia, thrombophlebitis, scar incompleteness, ascites, subaponeurotic hematoma, hydrothorax, anemia, relaparatomy and uterine extirpation with fallopian tubes, opening and drainage of iliopsoas muscle hematoma, thoracocentesis.

Following the Cesarean section, average hospital stay was 3 days (59.8%), with the lowest number being 2 days (15.2%). 20.8% stayed in the hospital for 3-7 days, 3.8% - for 8-16 days. In 1 case the hospital stays lasted 43 days.

SECTION 2.2. Indications for Cesarean section

Some of the issues covered during the survey included cases when pregnant women were indicated for Cesarean section; the rate of planned, unplanned Cesarean sections and a number of other issues. To the question at what time were C-sections performed, 74.7% of respondents indicated day-time hours, while 25.4% mentioned during duty service.

Figure 9. Time of Cesarean sections during work hours



According to participants of in-depth interviews, planned/scheduled C-sections were mostly performed during day time hours, whereas most of the unplanned/unscheduled ones - during duty service. As per quantitative survey, 51.0% of the Cesarean sections performed on annual basis are scheduled, 27.6% is emergency CS, before the labor starts, and 21.3% the need for CS emerges during labor. Examination of the medical cards of women with C-section in the last three years, illustrates approximately the same picture. Thus, according to 46.2% of examined cards (264 cards), the Cesarean section was planned, and in 53.8% cases - unplanned.

As a result of in-depth interviews with obstetrician-gynecologists, main groups of indications/causes of Cesarean section have been typified and clarified. These are:

- Obstetrical and gynecological indications, including fetal indications;
- Somatic indications or conclusions of related specialists;
- Subjective reasons - wished by the pregnant woman and relatives.

2.2.1. Obstetrical / gynecological indications, complicated delivery management practices

Examination of the medical cards of women who had Cesarean section in the last three years revealed that in 81.4% of cases C-sections was performed on the basis of obstetrical (mother) indication, 46.8% - fetal indications, and in 24.2% of cases – non-obstetrical indications. Owing to the fact that Cesarean section indications may be more than one, the overall percentage is greater than 100.

During in-dept interviews, most frequently quoted cause referred in **obstetrics-gynecological indications** was the “Scar on uterus”. Some respondents though, who were obstetrician-gynecologists, noted that they had an experience of a natural delivery regardless of the uterus scar:

> *"'…The pregnant woman came with a quite a sufficient dilation already. Deep down I was fearful, but no other choice was left but to manage the labor…, and fortunately, everything went well…, but I will never take such a risk again" (obstetrician-gynecologist, region).*
>
> *"…a few days ago, we had a natural childbirth subsequent to a Cesarean section..., if the woman has made up her mind and there is no other indication, the delivery is natural" (obstetrician-gynecologist, Yerevan).*
>
> *"…we take into account the age, the state of the stitches, the mood of the woman…" (obstetrician-gynecologist, region).*

49 participants (31.0%) of quantitative survey mentioned that in the last three years they had up to 10 cases of natural delivery subsequent to a Cesarean section. This was indicated during

the interviews with the doctors of Akhuryan's Mother and Child MC, Vanadzor MC and a number of MCs in Yerevan.

During qualitative interviews, the obstetrician-gynecologists of Women's Consultation mentioned other obstetrical indications for Cesarean section - mismatch between the sizes of the pelvis and the fetus, low-lying placenta and placenta praevia. Preeclampsia has been also mentioned as an indication for Cesarean section, however not for all specialists and not in all cases. The results of quantitative survey show how frequently Cesarean section is indicated in the cases of mild and severe preeclampsia.

Figure 10. Frequency of Cesarean section in the case of a preeclampsia

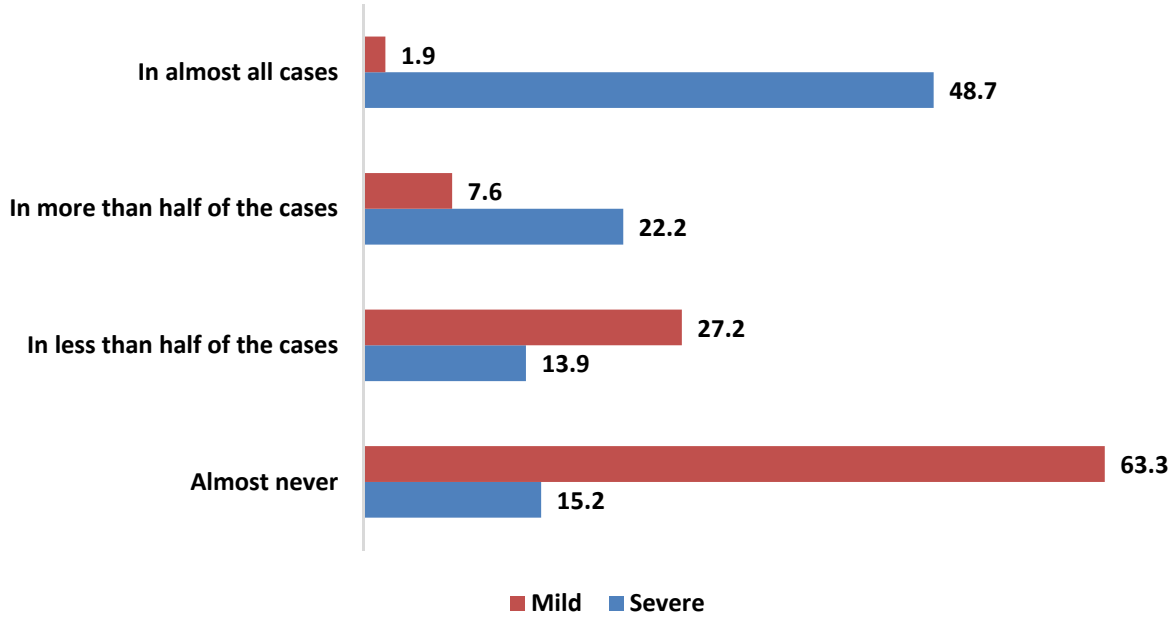
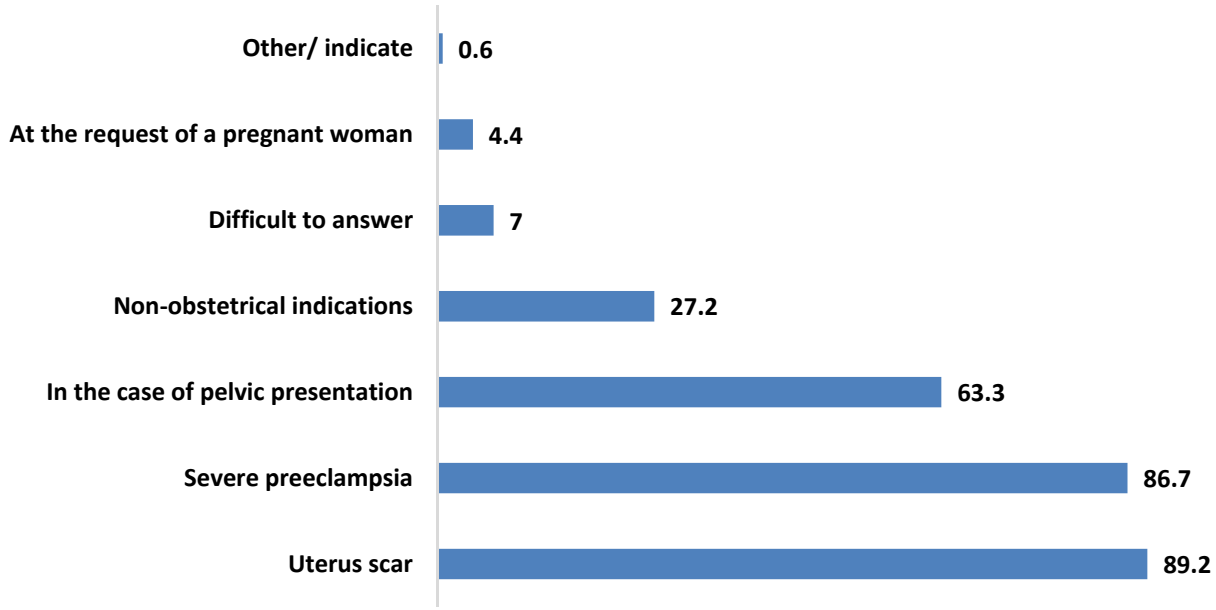


Figure 10 shows that certain professionals indicate Cesarean section in the case of mild preeclampsia, depending on the situation, however, in the cases of preeclampsia, obstetrician-gynecologists are mainly led by the national guidelines, as a result, doctors follow a clear guideline and feel more confident.

In the case of fetal indications, most frequently mentioned ones included frank breech, footling breech, or transverse presentation of the baby, as well as the wrapping of umbilical cord.
Figure 11 illustrates all indications usually mentioned by participants of quantitative survey to refer to or perform a Cesarean section. Since each respondent had the opportunity to indicate more than one answer, total number of responses was 440.

Figure 11. In which cases do you perform or refer for Cesarean section? (n = 440)



Part of the doctors surveyed during qualitative interviews claimed that some of the indications were not an indication for Cesarean section, and some of them countered that argument. There are doctors who have pointed out to have had successful cases of vaginal birth with indications, some have mentioned that they avoided taking a risk in such cases:

> *"…Prenatal care doctors are inhibited with outdated ideas, for example, they can send for Cesarean section in the case of narrow pelvis, however, this is not an indication; it has long been outdated…" (obstetrician-gynecologist, region).*
>
> *"…In the past, I was managing pregnancies with pelvic presentation, now in the case of pelvic presentation or somatic indications, we add another one or two indications to make it an absolute indication and perform a C-section…" (obstetrician-gynecologist, region).*
>
> *"When the likelihood is 50-50, we prefer to perform a Cesarean section, because there isn't one clear indication that would be acceptable for all" (obstetrician-gynecologist, region).*
>
> *“There is almost no scar on the uterus. Everyone comes already in the mood to have Cesarean section"(obstetrician-gynecologist, Yerevan).*

The aforementioned highlights the lack of a single approach to Cesarean section indications. **Consequently, doctors avoid taking risky solutions, giving preference to Cesarean section.**

In Armenia, very few specialists manage complicated deliveries like vacuum, forceps extraction. “Certain clinics do not have appropriate conditions to perform these - lack of professional medical staff, instruments, respective specialists (neonatologist).

> *"Neonatal care is very underdeveloped here, if not fully missing. It’s better to have 5% more Cesarean sections than me handing over an infant with problems” (obstetrician-gynecologist, region).*
>
> *"The pregnant woman is coming to the maternity hospital to have a child, rather than to deliver...we have to consider this, because in the event of any risks, the doctor becomes an easy target of contempt” (obstetrician-gynecologist, region).*

Using quantitative research outcomes, the number of obstetrician-gynecologists managing complicated deliveries and the frequency was estimated. Thus, over the last 3 years, how many vaginal/natural births with pelvic presentation have been performed, have they had any experience of performing vacuum extraction and/or forceps? As the study data reveals, over the past 3 years, 71 of the surveyed doctors (about 45%) have managed up to 10 deliveries, 5 doctors (3%) - 10 to 19 deliveries, 2 doctors (about 1.5%) - 20 to 29, 6 doctors (about 3.8%) - more than 30. In total, 49 doctors (31% of respondents) mentioned about experience in vacuum extraction, of which 38 (24% of respondents) have conducted up to 10 cases, and 33 of them (about 21% of respondents) performed it independently. 17 doctors indicated about 1-2 attempts of forceps extraction (10.8%).

> *"I haven't used forceps, I only performed a vacuum… we have a very good apparatus donated to our center", (obstetrician-gynecologist, region).*
>
> *“There is no proper forceps, no neonatologist, how can we take such a risk?”, (obstetrician-gynecologist, region).*

With regard to **management of a complicated delivery, it should be noted that not all medical staff of health care centers is sufficiently trained (in terms of composition, quantitative and knowledge / skills). Technical retrofitting is also an issue.** There are centers which have started to perform a second Cesarean section. Before they referred them to Yerevan, however they have started providing services to rural and urban settlements of the region.

Interviews with obstetrician-gynecologists lead to a key conclusion that no clear guide on instructions of Cesarean section exists, which could be used by all maternity hospitals and doctors of the country.

“There are American, European and Russian approaches, but there is no national guideline that will be mandatory for everyone" (obstetrician-gynecologist, region).

As a result, doctors feel insecure because in the case of a serious problem they have no grounds to prove the rationale of their actions both to the relatives of the pregnant woman, as well as to the law enforcement bodies.

"The doctor is not insured. I have personally gone through court processes for a number of times and these are extremely unpleasant…" (obstetrician-gynecologist, region).

"There should be a protocol approved by the Ministry of Health and the Ministry of Justice. An investigator can never examine the doctor's case. In the global practice, there is a medical commission, which examines and determines the rationale of a doctor's actions in case of problems” (obstetrician-gynecologist, region).

"Today, the fate of a merited doctor, who has saved hundreds of lives, is determined within seconds, by a journalist with no medical education and knowledge, throwing mud on the doctor. And some people start discussing and vent spleen on that doctor. Even if there is a 10% risk, the doctor is going to avoid natural delivery” (obstetrician-gynecologist, region).

Therefore, the following actions should be taken:

- Develop a national guideline/protocol setting forth clear obstetrical-gynecological indications for Cesarean section, as well as elaborate CS indication and contraindication in the existing and draft guidelines, since they have a consultative nature, and the protocol cannot be generalized across all institutions;
- The protocols should be mandatory for all doctors and medical centers functioning in the Republic of Armenia, and
- It can be used for legal review of cases with negative outcomes.

2.2.2. Conclusions of related medical specialists

Ophthalmologist: In-depth interviews with obstetrician-gynecologists revealed that the highest rate of CS indication in the context of extra-genital pathologies is seen to be made by ophthalmologists. For ophthalmologists, there are absolute and relative indications for Cesarean sections. Absolute indications are: retinal detachment/thinning, intraocular high pressure, refraction issues (myopia, astigmatism, lattice degeneration) congenital glaucoma and so on.

According to surveyed ophthalmologists, eye surgeries do not serve as an indication for Cesarean section.

> *"Women with past laser vision correction are recommended for examination through dilation of pupils. If none of the absolute indications is found, the woman can give birth naturally" (ophthalmologist, Yerevan).*
>
> *"Women with past laser vision correction may experience ocular deterioration during pregnancy due to hormonal changes, however, once the hormones are all set, the eye-sight is restored. …The condition of retina is what really matters…" (ophthalmologist, Yerevan).*

Ophthalmologists' decision on indicating for Cesarean section is not made solely by them. The ophthalmologist consults with the obstetrician-gynecologist, and in complicated cases invoke a Consilium of 2 professional groups including service leaders and /or more experienced specialists.

Study of medical cards showed that only 13.6% of the 264 cards scrutinized contained non-obstetrical indications for Cesarean section based on the conclusion of related medical specialists. 58.3% of these cases (36 cases) were related to ocular indications, most of which to laser vision correction. There were cases when strabismus, myopia, keratoconus, astigmatism were stated as indications for Cesarean section.

According to ophthalmologists, the above-mentioned pathologies are not considered an absolute indication for Cesarean section.

Cardiologist, angiologist: In-depth interviews with angiologists revealed that most common vascular disorders, such as varicose veins of limbs, mild thrombosis, etc., no longer served as an indication for Cesarean section, on the contrary, such problems were contra-indicative. Expressed vaginal varicose may serve as an indication, and in that case, after the examination is over, a discussion is held with the obstetrician-gynecologist and one common decision is drawn.

Pregnant women with varicosis widening problems are advised to wear elastic stockings and be placed under doctor's supervision.

As far as cardiological issues are concerned, there are clear indications in this case, whereby a group of pathologies are considered absolute, while another part - relative indications. Absolute indications include congenital heart defects not treated in the lifetime, or ensued complications, or other post-surgery (e.g. prosthetic heart valves, etc.) complications, or have caused heart failure. Women with sever heart defects, other severe heart pathologies placed under cardiologist's supervision, are sometimes disallowed to get pregnant and give birth. When a woman is not contraindicated to get pregnant, they should be placed under the doctor's supervision during pregnancy. In the case when a heart disease or heart issues have been treated through surgery and no residual complications and consequences are found, these shall not act as an indication for Cesarean section.

The decision on prenatal care and delivery plan of a woman with cardiological issues is made through consilium (case conferencing) with participation of a cardiologist, obstetrician-gynecologist, neonatologist and an anesthesiologist.

Member to European Society of Cardiology, the Association of Cardiologists of Armenia, already has a prenatal care guide for women with cardiological conditions, which is still in the process of translation, yet widely used by the cardiologists.

Neonatologist: During in-depth interviews with neonatologists, the problems leading to Cesarean section indication were discussed. These include intrauterine fetal hypoxia, umbilical cord wrapping leading to heartbeat failure, problems with intrauterine fetal development and growth, as well as other fetal abnormalities that can lead to death. When asked whether increase of Cesarean sections has reduced neonatal problems, not all neonatologists answered positively. Many favor natural delivery, considering that in these cases the newborns are more adapted to the surrounding world than in the case of Cesarean section. Therefore, they propose to improve the skills and knowledge of obstetrician-gynecologists to manage complicated delivery.

2.2.3. Subjective factors and measures to develop those / Maternity School

In Armenia, like elsewhere, the desire of a pregnant women takes priority when it comes to choosing the delivery method.

“The predisposition of the pregnant woman is fundamental; if she has made up her mind to have a C-section, it’s extremely hard to convince her otherwise, although in some cases we succeed and they have a normal delivery” (obstetrician-gynecologist, region).

"If a pregnant woman comes and says that she wants a Cesarean section, we take her to C-section" (obstetrician-gynecologist, Yerevan).

All doctors pinpointed the need to work with women /their families/. For most cases, when women go to give a birth, they already have a preferred method of childbirth planned.

When pregnant women apply to the doctors requesting to perform Cesarean section, as reported by the respondents of in-depth interviews, they start to explain women about the positive and negative aspects of different methods. In some cases, the doctors succeed to impact the decision, but in most cases they fail:

"The pregnant woman wants a C-section, we don't see any indication, so we begin to persuade her. If she does not succeed, she will look for a doctor who will eventually perform the C-section… "(obstetrician-gynecologist, Yerevan).

As stated by many, the pregnant woman and her relatives require guarantees from the doctors:

"The woman comes already in the mood of having the baby with C-section, and as you start explaining, she asks: “Do you guarantee that everything will be fine?” thus shifting the entire responsibility on the doctor" (obstetrician-gynecologist, region).

“If it is a complicated case, you take the pregnant woman for natural childbirth only to find all of her relatives swarming around you demanding guarantees…” (obstetrician-gynecologist, region).

The doctors of all levels related to the decision on delivery method have highly prioritized the risk factor that falls on the doctor. When faced with breech bottom presentation or uterus scar, the doctors predominantly rely on the wish of pregnant women and their relatives. In such cases, doctors avoid taking risks and bearing the entire responsibility for the process.

Public pressure, especially as a result of not being familiar with the current medical approaches, makes doctors perform far more Cesarean sections than needed. According to respondents, women (especially in rural areas) receive information mainly from non-specialized sources, but rather from the experience and opinions of women around them and the Internet, therefore awareness activities among women become high priority.

Recurrently, it is cited that at the primary level women receive a corresponding referral, but sometimes in-patient services raise concerns that not always the referral at primary level is well-grounded and in line with modern approaches"

> *"Sometimes they write indications that are in no way for Cesarean section, for example, narrow pelvis" (obstetrician-gynecologist, region).*

During the survey, the Maternity schools were referred by respondents as preparatory level. Although all respondents highlighted the role of Maternity schools, yet not always these schools operate effectively. There are many instances where the pregnant women cannot attend the classes due to their busy schedule. Sometimes, pregnant women are not allowed to attend these classes (again explaining it with the fact of being busy) given their cultural specifics. One positive example of a Maternity school was featured in one of the regional clinics, where it was conducted with international doctors. While being a positive example, this is not typical for a Maternity school. Women's Consultations, where Maternity schools operate, indicated that according to the plan, 3-7 classes are conducted throughout the entire gestation period, however it doesn't play a significant role when it comes to determining the delivery method, which is due to low participation rate.

With regard to the psychologist's roles at primary healthcare or inpatient levels, virtually all respondents mentioned that the function of a prenatal psychologist has been mostly covered by the prenatal care providers or obstetrician-gynecologists managing the delivery. During pregnancy, the pregnant women have direct interaction with the prenatal doctor, which helps to build mutual trust. Thus, the work of prenatal health care provider is crucial for all stages of pregnancy and childbirth. Introduction of psychologist services has been prioritized by the doctors in particular at postpartum period to help women cope with diverse psychological problems. Furthermore, the psychologists' work is particularly central during prenatal period, which can sometimes relieve the burden of an obstetrician-gynecologist, with being more targeted and professional.

The doctors have described manifestations of women's persistent yearning for Cesarean section, which derive from their negative past experiences. In such cases, especially where no specialist psychologist is involved, its function is assumed by the WC obstetrician-gynecologists, who not always succeed in referring women to natural childbirth.
Thus, based on the aforementioned, it can be concluded that:

- Regular training courses should be conducted with primary healthcare providers to update their knowledge and skills;

- Regular training courses need to be organized with birth management doctors, which will not only be theoretical, but also practical to inform about sector-specific approaches and changes, while teaching them complicated childbirth management skills (using respective equipment and mock-ups);
- Engaging a psychologist in both the prenatal care and delivery is important to provide professional support and help to women to overcome their fears. This will also relieve the doctors' burden and psychological tension;
- Make the Maternity schools more attractive for pregnant women. Courses will be conducted online as needed. This will on the one hand solve the issue of accessibility in terms of time and space, and on the other hand tackle mentality-driven issues;
- To conduct similar training courses for the spouses of pregnant women, as well as for other family members (mother-in law, etc.). In this specific case, online courses can produce higher outcomes if the anonymity of participants is ensured.
- To implement large-scale awareness raising activities, using media, television, radio, Internet or print media resources. From this perspective, broadcasting a TV program series “Maternity School” by national TV on weekly basis could have positive outcomes by channeling necessary information to the target audience of the society.
- In this context, it is equally important to organize outreach training courses for journalists to educate them on how to intelligibly and impartially present topics related to pregnancy and childbirth processes.

2.2.4. Use of assisted reproductive technologies and Cesarean section

Findings of interviews expose the fact that the use of modern methods of infertility treatment/overcoming is not an indication for Cesarean section. In this case, a number of factors, such as the age of the woman, having other children previously (secondary infertility), the condition of the pregnant woman, the economic and socio-psychological factors, are taken into account:

> *"Our region is poor, if someone has borrowed that much money to do an IVF, from economic and socio-psychological perspective, the risk of natural birth goes up..." (obstetrician-gynecologist, region).*
>
> *"They exert effort for years, spend so much money, after several negative outcomes finally get pregnant, …and in some cases it is their last chance, we*

should do our best to help them go home with their child" (obstetrician-gynecologist, region).

The interviews brought into light certain cases when in vitro fertilization resulted in natural childbirth due to the predisposition and confidence of the pregnant woman. Therefore, in this case also, obstetrician-gynecologists avoid taking the risk and responsibility and accommodate the request of the pregnant woman and her relatives.

PART 3. Findings of in-depth and group interviews with women

SECTION 3.1. Preferred mode and place of delivery

During interviews with women, the understanding of and attitude to Cesarean section were explained by identifying the following topics:

1. *Preferred mode and place of delivery*
2. *Knowledge about Cesarean section*
3. *Factors affecting the decision on Cesarean section*

The majority of women participating in qualitative surveys gave preference to vaginal birth. The main arguments in favor of vaginal delivery were the following: faster recovery at postnatal stage, the ability to engage in child care independently, avoid surgical intervention, avoid pain of C-section stitches, and so on.

A minor fraction (around 8 people) of women who took part in the FG discussions spoke positively about Cesarean section. The main rationale for favoring Cesarean section was psychological fear of pain, perineotomy and predisposition to harm the fetus.

Although most women pointed out their preference for vaginal delivery, however, they would agree to Cesarean section if need arised to protect their child's or their own health.

The above arguments come to prove that the preference of pregnant women is hardly the cause of growing Cesarean section rate. Furthermore, women will not strictly abide with the

preferred mode of delivery, and, where necessary, they can have Cesarean section if medically indicated.

Markedly, women with no childbirth experience were more inclined to Cesarean section than those who have ever had a vaginal delivery. In the meanwhile, women with previous vaginal delivery, who had a traumatic childbirth experience, have fears and therefore they opt for Cesarean section. At this point, sufficient and accessible information is pivotal to make sure women have appropriate guidance when it comes to the decision on the mode of delivery.

The option of vaginal delivery finds more support among women from regions, especially remote and rural communities, who tend to choose vaginal birth. In the circles of these women, according to their own observations, other women also prefer vaginal delivery, while in Yerevan, those doing Cesarean section are referenced more frequently.

According to observations, women with relatively higher income tend to prefer Cesarean section more than those with lower income, and the preference for vaginal delivery also has to do with the lack of financial resources for a C-section. As the respondents state, it is accepted to pay the doctors extra in the case of Cesarean section.

The overwhelming majority of women with experience of both delivery methods give preference to natural childbirth. For the majority of women in this group, postpartum recovery runs smoother and faster than in the case of Cesarean. Only in rare cases the preference is given to Cesarean section.

Remarkably, women aged 36 and older choose vaginal birth in this case, whereas women of 35 and older go for CS, which they explain by the fact that after 35 women's body recovers slower, while relatively younger ones recover more easily, therefore they do not avoid from delivering in that mode, provided they have certain anxiety or not overly stringent indications. However, women above 35 opt for Cesarean section more frequently, as proved by data collected through other survey methods.

It should be noted that women sidestep vaginal birth after a negative pregnancy experience (miscarriage, anembryonic pregnancy etc.) considering C-section a safe alternative to avoid risking the health of infant and mother.

In addition, as assured by the participants, doctors do not refer to Cesarean section without any grounds. According to them, the doctors recommend women to have vaginal delivery until the last moment. Nonetheless, it is observable that if in the case of any health-related threat it is usually the doctors who set the conversation on the delivery via Cesarean section. Based on participants' accounts, for most cases doctors are strongly opposed when it comes to elective Cesarean section without indication and requested by the pregnant woman.

As for the choice of a health facility, a general lack of trust in the system as a whole is observed, since Women's Consultations or maternity hospitals are given preference very rarely. The above-mentioned issue is rather conspicuous among survey participants residing in regional cities:

> *"This may very well be a stereotype, but we think that the hospitals located in the central parts of city are better, we take our children to such hospitals, too, now we even try to apply to private medical institutions and we know that the quality of medicine is poor in the regions, there is a lack of trust. Of course, Kotayk is not among these regions, but as for others, they say the specialists are not very qualified. To be honest, I never faced this problem, but I very well take that opinion into account… " (35+, nearby region, Cesarean section).*

The majority of women, especially in Yerevan and nearby regions, have made their choice based on two factors: *trust in doctor* and *technical saturation of medical facility*. Less frequently the choice is made based on the reputation of a medical facility (incidents of deliveries with negative outcome):

> *"… Erebuni (hospital) is much safer. I always go to Yerevan whenever I have medical issues. Medical specialists there are well-trained, the equipment and everything is far more reliable. … In Masis, where I underwent consultation, hospital conditions were not good" (35 years and older, nearby region, Cesarean).*

> *"… There is a maternity hospital in Gyumri, Austrian Hospital of Mother and Child, but I do not know, I'd rather choose the doctor based on my experience. There are doctors who are not trusted by people due to many incidents of negative ending, so they go to Akhuryan, where there are fewer bad outcomes" (below 35, remote region, Cesarean).*

Most women in Yerevan and nearby regions have made their choice based on the doctor they preferred. Many of the survey participants from nearby regions had their child delivered in

Yerevan, in addition to consultations, while most of the remote regionss relied on health facilities and doctors in the local or nearby towns. The latter gave preference to medical institutions of Yerevan only if they had complicated pregnancies, or parents living in Yerevan or sufficient financial resources to cover travel costs.

The majority of women prefer Women's Consultations adjacent to inpatient facilities so that the prenatal doctor and birth attendant is one and the same person. Women's Consultations at district polyclinics (not affiliated to inpatient facilities) are mainly used by women who have a friend or a relative doctor, in order to avoid additional travel costs, and if they do not have a complicated pregnancy or comorbidities. Reasons for avoiding district polyclinics are linked to inadequate equipment, lack of professionalism of health care providers.

Based on the experience of the first delivery, survey participants frequently indicate cases of replacing the medical facility or the doctor. Main underlying causes were the professional skills and attitude shown during consultations and /or childbirth.

Hence, women who visited Womens' Consultation in regional cities for pregnancy supervision and/or for childbirth, frequently indicate about cases of misdiagnoses, choice of wrong delivery mode, which were later disputed in Yerevan.

Besides, some women mention, though rarely, about lack of a kind, comforting and respectful attitude during labor. This approach is referred to in the case of Yerevan-based maternity hospitals it the woman does not happen to have even a remote acquaintance to attend the delivery process. This circumstance motivates women to look for a health institution where they will have some acquaintance (whether a doctor or a nurse) to safeguard them from unfriendly attitude:

> *"...I was lying half-conscious in the Pathology Unit, when the hospital aide came and said to me: "You should look well after me so that I also look well after you," then she went to bring my purse so that I gave her money. However, during my second pregnancy I had a friend there, which made, little though, but a difference, although we were still paying the aides, nurses, doctors, nurses every day. Once my husband forgot to give money and everyone started backtalking, harping on, my baby was in the intensive care unit then, they didn't measure her temperature, not even change her diaper…" (below 35, nearby region, Cesarean, delivered in Yerevan).*

In the majority of cases, the decision on the choice of medical facility was made by the very participants, as they assured, and the decision was based on the advice of relatives and

friends with previous experience of delivery. On rare occasions, mother-in-law also takes part in the decision-making process, particularly in remote regions. However, it is indicated that presently pregnant young women have the opportunity to make a decision independently. Husbands are practically not involved in this process.

SECTION 3.2. Knowledge about Cesarean section

When listing clinical indications, based on which the participants or their friends/relatives underwent Cesarean section, women predominantly reference previous experience of Cesarean section, position of fetus, placenta location, wrapping of umbilical cord, health issues. Among the latter, disorders related to vision, veins and blood density, high blood pressure were most often indicated.

Thus, all women with previous experience of Cesarean section had delivered in the same way. At the stage of setting up the focus groups, no woman with previous Cesarean section and subsequent vaginal delivery was encountered. Despite the fact that most of the women with previous Cesarean section had their subsequent delivery after the interval of 5-8 years, none of the doctors offered them to have a vaginal birth. At this point, women have relied on the doctor's recommendation, who avoid taking risks, although doctors pointed out cases of such women, but only abroad, not in Armenia.

> *"…When I had my first child, there was no indication for Cesarean section, and I decided to give birth with Cesarean section as I was scared to death. The doctor agreed, and they did it. And the second one naturally was done through C-section. Despite that I wanted to have a natural delivery I was told that it's impossible, I had them 8 years apart. I know that presently you can do that, but my doctor did not advise it then. Although the stitches are in a good condition, my doctor said it would be a headache, so it's better to avoid problems…" (below 35 , remote region, Cesarean).*

It should be noted that although women themselves support Cesarean section in the case of problems related to the position of the fetus and/or health, however, if they see the doctor's confident position, they opt for a natural birth. Women are unequivocally ready to follow the doctor's instructions in this matter:

"…I had the first one naturally. In the case of the second child, preterm labor started at 37 weeks of gestation, in addition it was a bottom presentation. I could have a natural birth or C-section. But I was scared that my baby's life would be threatened, besides, I had Covid before then. However, I regretted my decision. There is a huge difference between the Cesarean especially when you had the first one through natural birth, it affects health, especially the epidural, whereas there are no problems with natural birth, (below 35, Yerevan, Cesarean).

It is important to note that during pregnancy most women have not received any information about medical indications of Cesarean section, as well as its benefits and risks by prenatal doctors before the Cesarean section. Moreover, even in the case of indication, no prior information is provided, or it is provided in the last minute when the pregnant women need to make a decision quickly. In this case the decisions mainly resort to Cesarean section since the health of the woman or infant is prioritized.

The above mentioned derives from the fact that although survey participant women realize the surgical risks of Cesarean section, however there is a perception that maternal and infant mortality, infants' health issues caused by childbirth, are reduced by Cesarean section.

Women were informed about positive and negative aspects of Cesarean section only when they expressed a wish to have a Cesarean section with no indication. In such cases prenatal doctors or doctors managing the delivery have a conversation with pregnant women to emphasize the privileges and specifics of natural birth.

It is mentioned, though rarely, that perhaps women are not overloaded with information on Cesarean section unless there are clear indications on performing Cesarean section:

In all other cases the participants have received information about Cesarean section mainly from relatives and neighbors with previous experience of Cesarean section, as well as from the internet. The participants namely from Yerevan and nearby regions consider that Cesarean section is gradually becoming an ordinary thing as nowadays more and more women deliver by Cesarean section.

The decisions of doctors are accepted unequivocally especially by women in remote regions, where the level of education is relatively low. Here it is important to make sure that information provided to women is accurate and is delivered according to the women's educational level. Besides, interventions should be based on evidence, and they should only be applied to women with complications.

Lack of women's knowledge about delivery by Cesarean section can be used by the health care providers to convince them to have a C-section even where there is no valid clinical indication for it. In some cases, women who gave birth by Cesarean section would later consider that they could have had a vaginal birth, while doctors steered them otherwise. Such cases included overweight fetus, insufficient width of pelvis, age factor (30-35 years old.) This finding proves that lack of awareness leads women to resort to Cesarean section, therefore it is necessary to engage pregnant women in the process of informed decision-making:

> *"… During every consultation visit my doctor was telling me that the fetus was too large and there might be a Cesarean section. Although during the ultrasound I was told that it wasn't a problem, my doctor scared me at my first consultation saying that I was over 30 and since this was my first pregnancy, the baby was overweight, it had to be a Cesarean section. But as the delivery drew nearer, the doctor started to persuade me to have a natural birth. And I was already in the mood and did not want to have it naturally. The doctor told me for several times: "Let's try, if we fail, we will change to Cesarean halfway. But I was already afraid. After Cesarean section, they said that I could have had a natural delivery, but it was already over…" (below 35, Yerevan, Cesarean).*

Apparently, when women are well-informed about any risk that arise during pregnancy or labor, they will be willing to set aside their preferences and make an informed decision on Cesarean section. Findings such as this emphasize the need for physician-patient effective communication.

On the other hand, despite the need for information, the desire to attend Maternity Schools is surprisingly low among women participating in the research. The intentions are particularly low among multiparous (having borne more than one child) and 35+ women who believe that they have accumulated enough knowledge with the first child to be applied during further pregnancies.

One of the reasons women do not want to attend Maternity Schools is time constraints of this group of women linked to the childcare and household chores.

The willingness and desire to attend Maternity Schools is more pronounced among primiparous (a woman who has given birth once) women. Although they find the Internet to be replete with relevant materials, they see the need nonetheless, reasoning that information provided by medical staff is far more reliable and trustworthy.

As a whole, women assess the likelihood of their spouses to attend Maternity Schools fairly low due to peculiarities of Armenian culture. However, some of the primiparous and below 30 women believe that their spouses will participate in such training courses. Nevertheless, in order to increase performance of attendance, it would be more preferable to convene these meetings individually and define them for example, as parenting schools, rather than maternity schools.

Interestingly, topics raised by respondent women as preferred areas were mostly related to childcare rather than the process of gestation and modes of delivery.

SECTION 3.3. Factors affecting the decision on Cesarean section

Analysis of research findings shows that the choice of delivery method is influenced primarily by the approach and attitude of the doctor managing the pregnancy and the labor. Regardless of the attitude of a pregnant woman, her final decision was influenced by the health care provider. A woman's close circle also entirely relies on the doctor's advice and has practically no influence on the pregnant woman's decision.

According to the stories of research participants, it’s evident that the doctor managing the pregnancy and labor had played significant role in making the decision on the mode of delivery. They serve as a primary point of contact and source of information both for the pregnant women, as well as for their families.

As already mentioned above, women, in general, give preference to vaginal birth while relying on the doctors as influential decision makers. Despite the preference for vaginal delivery, women as a whole do not have negative attitude toward Cesarean sections. Rather, they consider this surgery as a necessary and safe alternative to save lives.

Some women who had vaginal birth (mostly primipara women) with a complicated and protracted delivery (episiotomy, risk of fetal death, etc.), and at the same time faced non-supportive and careless attitude of healthcare providers (doctor, nurse) in the medical facility, they tend to fear of another vaginal birth.

On the other hand, women are not very much inclined to have another, third person (husband, relative, doula) attend the delivery[19], who will support them all along the process. The presence of a third person is more acceptable for women below 35, rather than those above 35. Notably, women who support the presence of a third person during labor, are most strongly in favor of a relative, rather than a doula. In the meanwhile, women consider that they will not feel free and relaxed in the presence of their spouses to fully concentrate on the process of delivery.

The idea of a psychologist is also less determinedly accepted by women. Psychologist's participation in the childbirth process is perceived more as an extreme need while, in their case, they believe the problem has been solved through their own efforts or the support of their relatives. Despite their childbirth fears, women do not realize that they can overcome those with the help of professional psychologists.

It should be mentioned that not always such incidents are indicated for Cesarean section, as reported by the respondents. In such cases, doctors explain potential risks, but the final decision on the delivery method is left to the woman herself. In these cases, they unequivocally opt for Cesarean section as they lack adequate knowledge and sufficient skills to take charge of the situation:

> *"… Before getting pregnant and during pregnancy I had no indication for Cesarean section. Towards the end, about 10 days before the delivery, I went to ultrasound examination to find out that the umbilical cord was wrapped twice around the baby's neck, that is why they did a Cesarean section. They explained the problem in detail, leaving the choice on me. The doctors were more for natural childbirth, but I preferred Cesarean section… " (below 35, Yerevan, C-section).*

> *"There was a chance for a natural delivery, the doctor said that it was possible, but because I had a trauma on my eye, with some stitches too, it could affect my eyes" (below 35, remote region, C-section).*

Most women with experience of Cesarean section do not participate in the decision-making process on delivery method as such, and accept the decision made by the doctor. On the other hand, the majority of women prefer doctors to make "Decisions to solve the problems". This is of particular concern because lack of knowledge affects their ability of informed engagement in discussions with their doctors. Furthermore, in some cases, women mention

[19] Questions asked during interviews and group discussions: "How do you feel about the presence of a third person during labor - husband, other relative or a doula?" "How well are you familiar with the doula service?" "Would you like the doula to accompany you during labor?"

that looking back, their health issue was not so crucial as to avoid vaginal delivery, and if they had sufficient knowledge, they would not be afraid to go for that delivery mode.

Women's preference for Cesarean section are shaped under such factors as previous grim obstetrical history, psychological fears of pain and episiotomy. In this case the Cesarean section is viewed as a fast and easy method of childbirth. Despite that the doctors try to talk to the woman and lead her towards vaginal delivery, the approach, none the less, is not too harsh, after 1 or 2 attempts of persuasion they perform a Cesarean section but with certain indications:

> *"… A psychological problem does not have any cause, I cannot say that there was some case, which made me change my mind, I just had these since a very early age. However, as I was 35, almost 36 years old, and I was having blood pressure fluctuations over the last few weeks, it was decided to do a surgery…" (35+, remote region, C-section).*

Fear of vaginal childbirth makes primiparous women gravitate towards the alternative of Cesarean section. Multiparous women, who had a vaginal delivery, tend to have less fears. Based on observations, women do not realize the necessity of psychologists in coping with childbirth fears due to lack of such services in Armenian clinics, however there is a need to introduce psychological services in the childbirth practices explaining women the exact functions and importance of psychologists.

Main causes of Cesarean section among multiparous women with past vaginal delivery is primarily their age (basically over 35), comorbidities. It's worth mentioning that in the case of women above 35, who had a past vaginal delivery, both them and the doctors themselves were poised for Cesarean section.

The decision to perform Cesarean section has been made primarily after 30 weeks of gestation usually in the light of a coexisting disease. In rare cases they mention about personal preference for Cesarean section, which is usually opposed by the doctors, and only when combined with other indications (above), they make a decision on the mode of delivery. There are also references on complications emerged during childbirth posing a threat for the life and health of the mother-to-be or the fetus.

PART 4. Findings of quantitative interviews with women

The sample of quantitative interviews was designed in such a way as to enable spreading the retrieved information with a 95% confidence interval +-4.8% probability of error across total population (women who gave birth in the last 3 years in RA). Thus, 62.0% of women participating in the survey had their last child naturally and 38.0% - through Cesarean section. **Figure 12** presents the distribution of delivery method by age groups of women who gave birth. It is apparent that the number of Cesarean sections increases as woman's age grows.

Figure 12. Age of women with vaginal birth and Cesarean birth

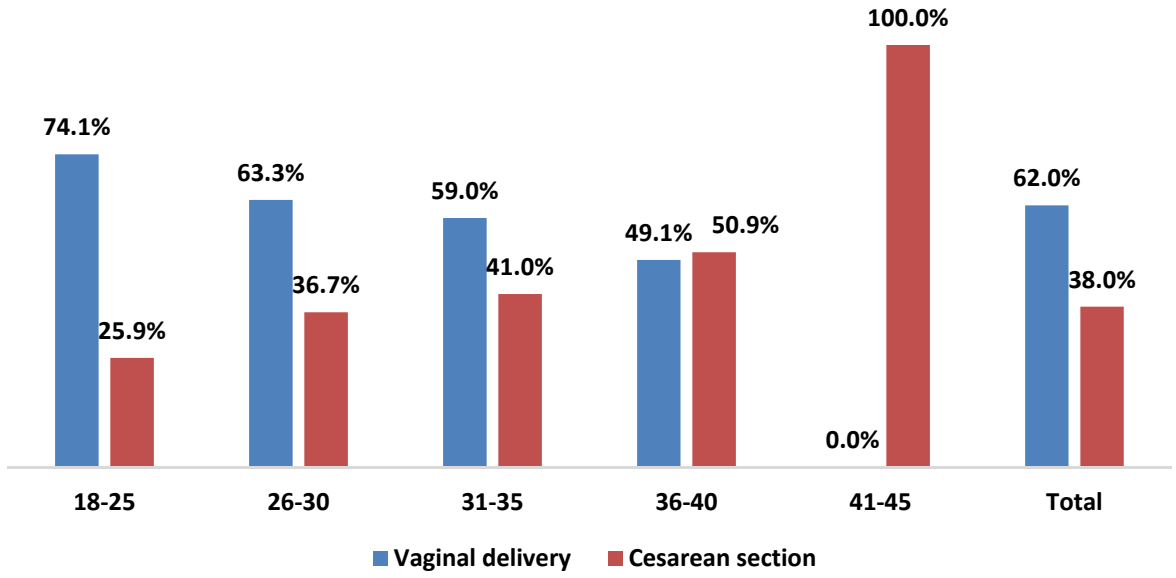
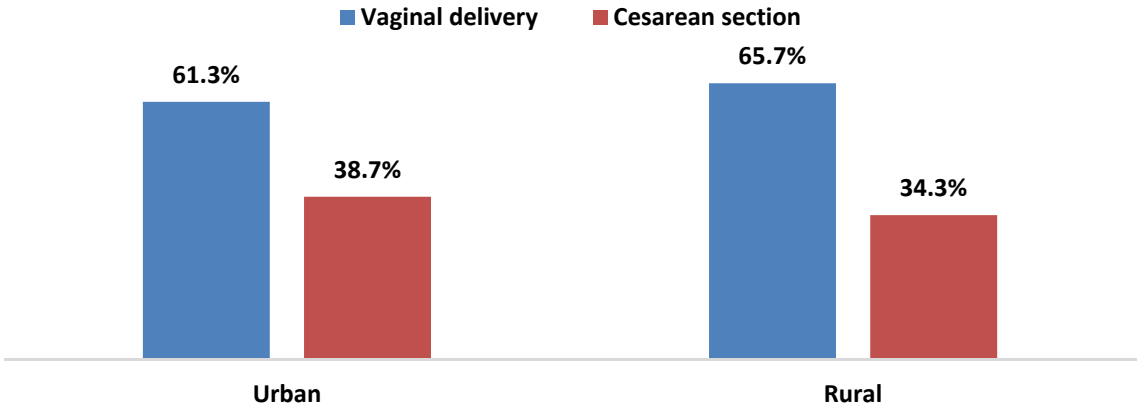


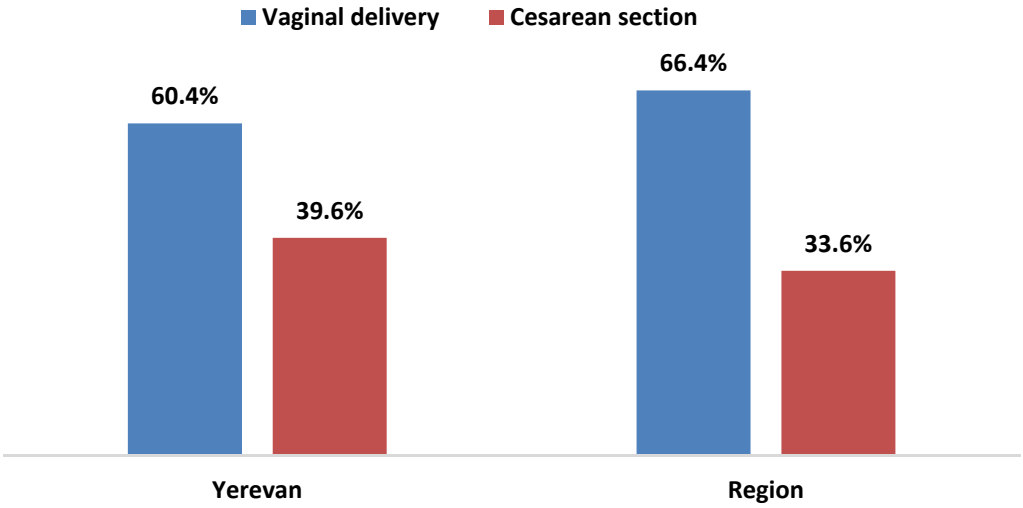
Figure 13 shows the method of delivery used by women in urban and rural areas. As we can see, the number of women in urban areas giving birth by Cesarean section is higher from those in rural settlements.

Figure 13. Place of residence and mode of delivery



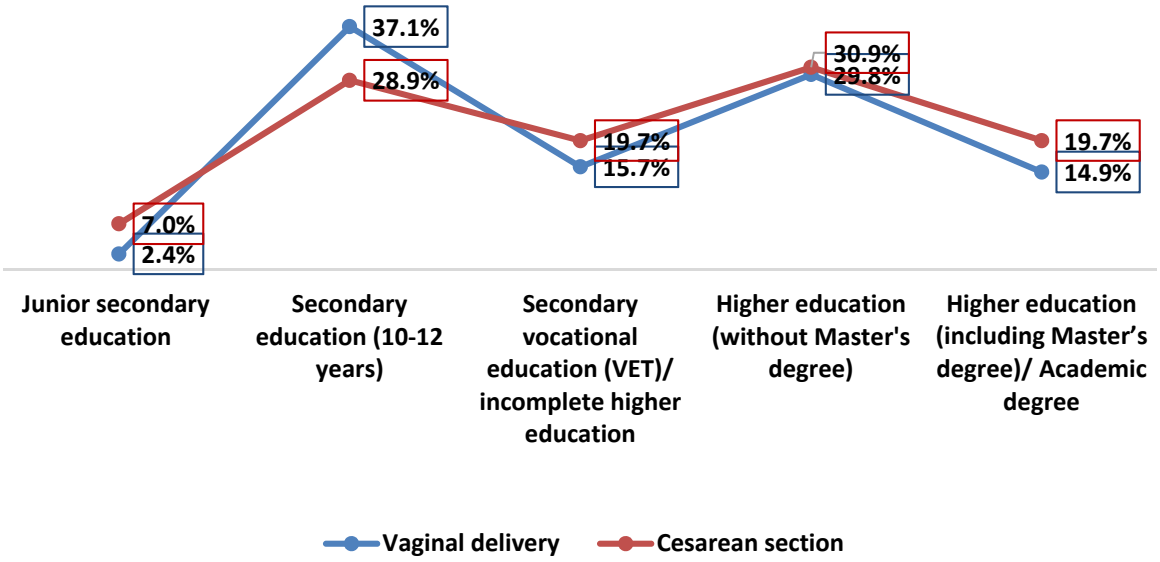
Moreover, observation of the difference between Yerevan and regions (city/village) shows that women in Yerevan lean towards Cesarean section more than those in the regions.

Figure 14. Mode of delivery by Yerevan and regional/marz distribution



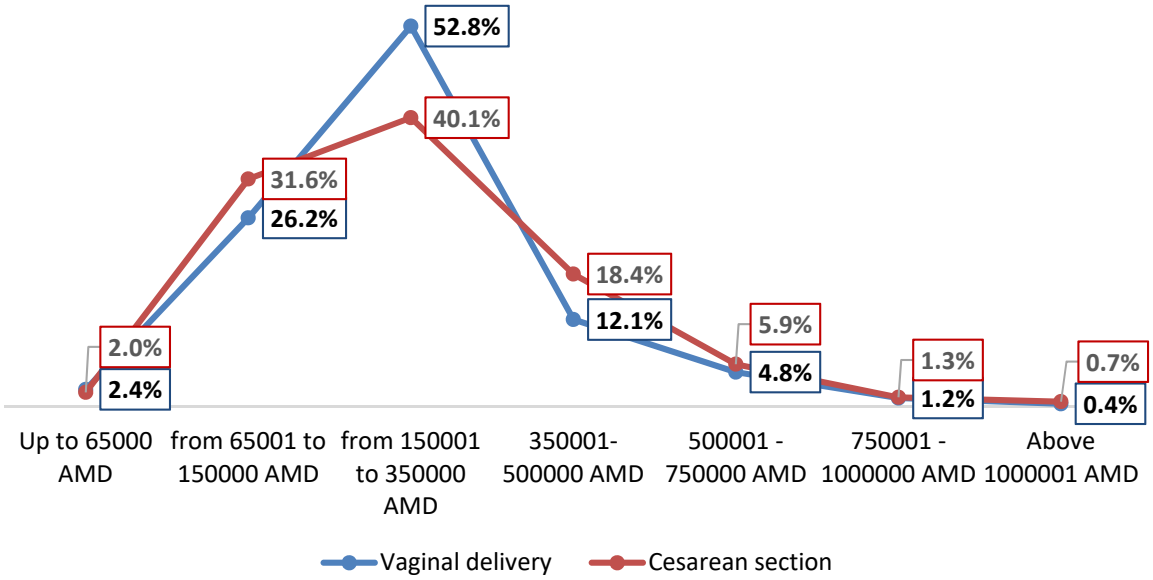
The choice of delivery method depends on the educational level of women. Interestingly, the likelihood of giving birth by Cesarean section goes up as the educational level increases.

Figure 15. Mode of delivery and women's education



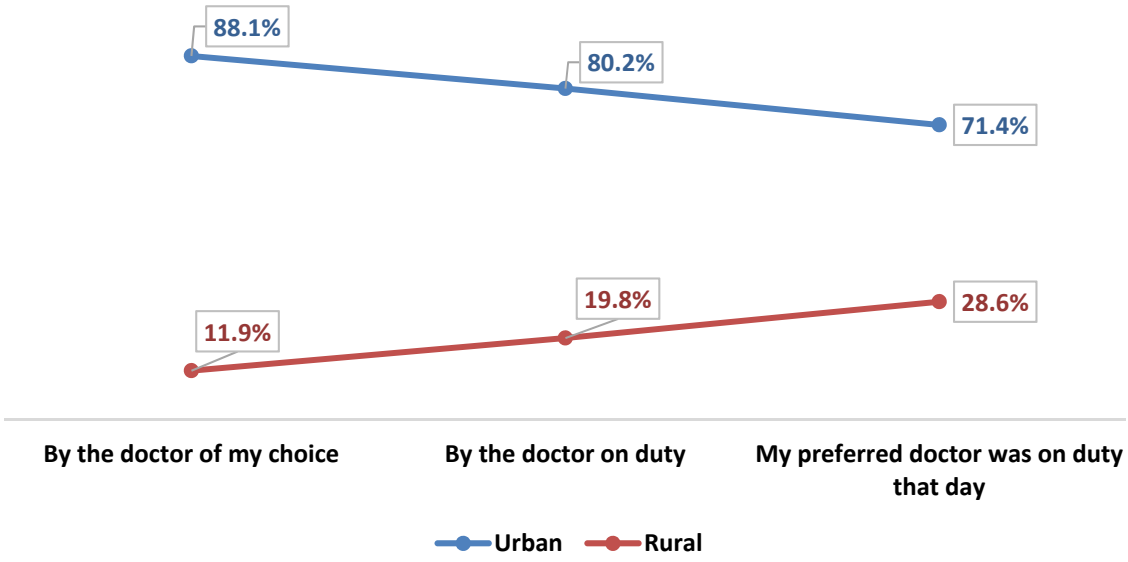
The Figure below shows that the increase of mean monthly income of a family is paralleled with the likelihood of a Cesarean section. This means that those with higher income tend to opt for Cesarean section more than those with less income.

Figure 16. Mode of delivery and income



48.3% of women gave birth (regardless of Cesarean section or vaginal birth) with the doctor of their choice, 43.0% - the doctor on duty and 8.8% said they delivered at the duty of their preferred doctor. There is a certain dependence between the choice of doctor managing the delivery/Cesarean section and women's place of residence.

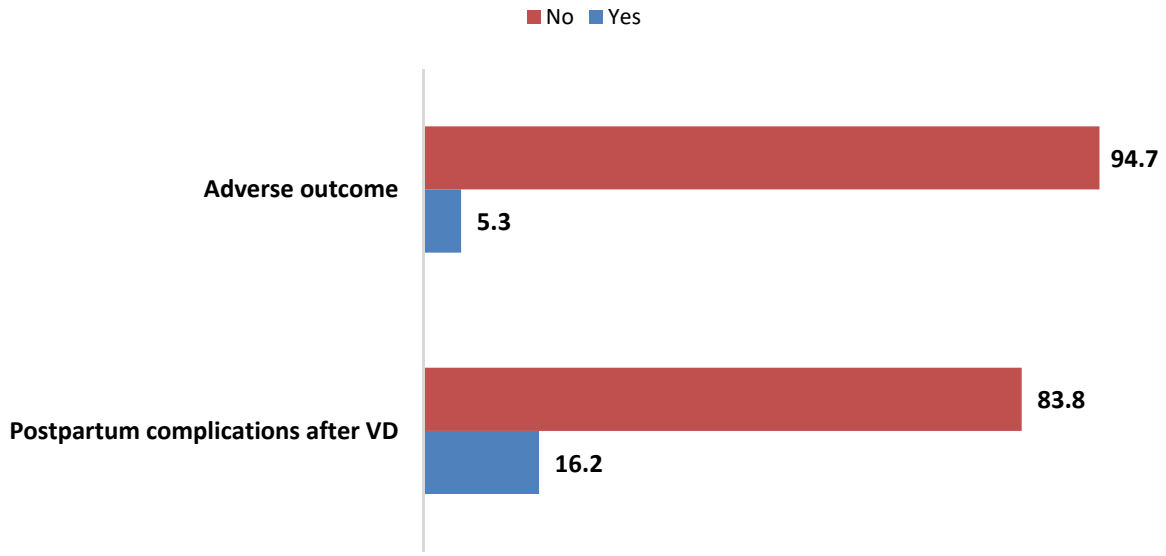
Figure 17. Preference of doctor managing the delivery according to the type of settlement



In addition to most recent delivery method, during quantitative interviews we identified the methods of delivery of respondents in general. 61.5% of the surveyed women had only an experience of vaginal delivery, 24.5% - only Cesarean section, while 14.0% - both natural and Cesarean section.

5.3% of women (n = 302) who gave birth by vaginal delivery, had a previous labor with an adverse outcome. Only 16.2% pointed out the complications following VD.

Figure 18. Previous VD with adverse outcome and complications after VD



The respondents pointing out adverse outcome (16 persons), described these as follows: adverse outcome for mother (4 persons), fetal death during labor (3 persons), delivery trauma of infant (3 persons), prenatal death of fetus (6 persons).

In response to the question on how many days were required to recover after CS, the average number of days indicated was 19. The most cited answer was 3. The least time required was 1 day, and the maximum - 100 days[20] .

Women who gave birth with CS were asked whether they would choose VD over CS if they were to rewind the time. The question was answered positively by 11.3% (34 persons) of women in that group (302 women which includes women who had only CS, and VD and CS), negative answers were given by 87.1% (263 persons) and 6.5% (5 persons) had a difficulty to answer. 34 respondents who answered "Yes", explained why would they prefer CS over VD. Since each respondent had an opportunity to indicate several options, therefore the answers exceed 100%.

Table 5. Reasons for preferring to replace vaginal delivery with Cesarean section	**Quantity**	**Percent**	**Options**
So that I did not have labor pains	22	18.0%	64.7%
So that I did not have tears of birth canals and deformation of genitals	20	16.4%	58.8%

[20] The infant was born preterm and mother had complications resulting in 3 months stay in the hospital.

So that I didn't have to feel the stress in the delivery ward and get anxious	18	14.8%	52.9%
Vaginal delivery poses higher risk to the mother and the child	18	14.8%	52.9%
So that my child did not experience any problems during vaginal delivery	15	12.3%	44.1%
So that I didn't undergo frequent and painful vaginal examinations during delivery	13	10.7%	38.2%
In order to avoid postpartum complications – prolapse of uterus, vagina, incontinence or damage to rectum.	13	10.7%	38.2%
So that they could tie my tubes during the Cesarean section	3	2.5%	8.8%
Total	122	100.0%	358.8%

Women who did not want to replace VD with CS (263) provided their justifications for that.

Table 6. Reasons for not wishing to replace vaginal delivery with Ceserean section	**Quantity**	**Percent**	**Options**
The pain of vaginal delivery is more acceptable than the complications of Cesarean section	218	13.9%	82.9%
Women recover faster after vaginal birth and return to their daily routine	215	13.8%	81.7%
Normal vaginal delivery is easy and preserves women's health	190	12.2%	72.2%
Vaginal birth is a natural process, whereas Cesarean section is man induced and artificial method	177	11.3%	67.3%
The beginning of breastfeeding is more successful both for the mother and the child	177	11.3%	67.3%
Possibility of serious problems is less in vaginal birth	146	9.3%	55.5%
I want to have more children, so the purpose is to avoid complications in further pregnancies	143	9.1%	54.4%
Children born with vaginal delivery are healthier than those with Cesarean section	107	6.8%	40.7%
During vaginal birth the growth of fetus is complete, while during Cesarean section it isn't	105	6.7%	39.9%
Financially vaginal birth is more affordable, whereas in the case of Cesarean section additional financial costs incur	84	5.4%	31.9%
Difficult to answer	1	0.2%	0.5%
Total	1563	100.0%	594.3%

Women who gave birth by **Cesarean section** (n=154) first answered the question on why they delivered by Cesarean method. They were given the opportunity to mark several answers which resulted in 246 responses in total. The results are presented below in **Table 7:**

Table 7. Causes of Cesarean section	**Quantity**	**Percent**	**Options**

My physiological state, I didn't have a dilation, etc.	47	19.3	30.5
Inconvenient, irregular position of fetus, breech presentation	44	17.9	28.6
I had Cesarean section previously	34	13.8	22.1
I was older	21	8.5	13.6
Another doctor had recommended	18	7.3	11.7
Assumed weight of fetus	16	6.5	10.4
Ophthalmologist had recommended	12	4.9	7.8
Fetal indication	11	4.5	7.1
Other health problem	8	3.3	5.2
Hematologist had recommended	7	2.8	4.5
I was scared of labor pains	6	2.4	3.9
Unsuccessful attempt of vaginal birth previously	5	2	3.2
Cardiologist had recommended	4	1.6	2.6
High blood pressure	4	1.6	2.6
It was a multi-fetus pregnancy	3	1.2	1.9
My relatives demanded C-section as we believed that the life of mother and infant are not threatened in the case of Cesarean section	3	1.2	1.9
We wanted to choose the date of child's birth	3	1.2	1.9
Total	246	100.0	159.7

Women who gave birth by **Cesarean section** (n=154) answered the questions on the method of delivery they chose subsequent to Cesarean section, and second, what method of delivery were they going to choose next.

	After Cesarean section...	
Table 8. Preferred delivery mode after Cesarean section	**What method of delivery did you use**	**What method of delivery do you plan to use**
Vaginal delivery	1.9%	20.8%
Cesarean section	48.1%	58.4%
Haven't given birth/not planning to give birth	50.0%	20.8%
Total	100.0%	100.0%

When asked whether they had complications after the CS, 20.8% of women who had childbirth with CS gave a positive answer.

Figure 19. Complication after CS

In response to the question on how much time they needed to recover after CS, the average number of days indicated was 28. The most cited number of days was 30. The least time required was 1 day, and the maximum - 100 days.

Women who gave birth with CS were asked whether they would choose VD over CS if they were to rewind the time. The question was answered positively by 58.4% (90 persons) of women in that group (154 women), negative answers were given by 35.1% (54 persons) and 6.5% (10 persons) had a difficulty to answer. 90 respondents who answered "Yes", explained why they would prefer VD over CS. Since each respondent had an opportunity to indicate several options, the answers exceed 100%.

Table 9. Justifications for wishing to replace Cesarean section with vaginal delivery	**Quantity**	**Percent**	**Options**
Complications of Cesarean section are more compared to normal vaginal birth	64	22.8%	71.1%
Women acquire health issues as a result of Cesarean section	50	17.8%	55.6%
I would not want to have a scar on my abdomen	51	18.1%	56.7%
Children born with Cesarean section are not as healthy as the ones born with vaginal birth	8	2.8%	8.9%
Recovery takes longer after Cesarean section, than in the case of vaginal delivery	74	26.3%	82.2%
They stay longer in the hospital after Cesarean section than after vaginal birth	32	11.4%	35.6%
Other	1	0.4%	1.1%
Difficult to answer	1	0.4%	1.1%
Total	**281**	**100.0%**	**312.2%**

Women who did not want to replace CS with VD (54 persons) provided their own justifications for it.

Table 10. Justifications for not preferring vaginal delivery over Cesarean section	**Quantity**	**Percent**	**Options**
Recovery of sexual relations after vaginal delivery takes time	8	5.1%	14.8%

After vaginal delivery women often perform vaginal reconstructive surgery	3	1.9%	5.6%
Mentally I am not ready for vaginal delivery	30	19.2%	55.6%
Physically I am not ready for vaginal delivery (I have certain health issues)	27	17.3%	50.0%
With Cesarean section I feel safer that nothing will happen to me or my child	34	21.8%	63.0%
With Cesarean section, you do not have to take the position of a woman in labor	8	5.1%	14.8%
Cesarean section lasts longer than vaginal delivery	17	10.9%	31.5%
It's preferable to have complications from Cesarean section, than endure the pain of vaginal delivery	18	11.5%	33.3%
In the case of Cesarean section, you can decide on the date of the child's birth, choose a beautiful date and be more prepared	7	4.5%	13.0%
Other	1	0.6%	1.9%
Difficult to answer	3	1.9%	5.6%
Total	**156**	**100.0%**	**288.9%**

All respondents (n = 400) have answered the question of how much the sources of information listed had affected their choice of childbirth method (in general). The results are presented below:

Table 11. How much did it affect the method of delivery...	**Significantly**	**To some extent**	**Not so much**	**Didn't affect at all**	**Not applicable**
Doctor managing the pregnancy	44.3	20.3	5.3	29.8	0.5
Doctor managing the delivery	44.8	23.3	3.3	28.3	0.5
Another physician (ophthalmologist, angiologist or other)	6.5	8.0	3.8	80.5	1.3
Husband / partner	4.8	24.3	12.3	57.8	1.0
Parents / relatives	3.8	19.0	13.3	63.3	.8
Vaginal birth experience of friends/relatives	1.8	13.0	13.3	70.5	1.5
Thematic courses, preparatory courses for delivery	2.3	8.3	3.5	57.5	28.5
Web articles, professional websites	4.5	24.0	9.8	60.3	1.5
Television	0.5	7.3	7.8	82.5	2.0
Social media	2.0	24.3	9.5	62.8	1.5
Books, magazines, booklets	2.8	24.5	7.3	63.3	2.3

To the question of who has played a significant role in choosing their recent delivery method, the responses of respondents are presented below **in Table 12**.

Table 12. Impact on the last delivery method.	**Quantity**	**Percent**	**Options**
Doctor managing the pregnancy	266	44.11	66.5
Doctor managing the labor	221	36.65	55.25
Husband / partner	32	5.31	8
Parents / relatives	25	4.15	6.25

Other physician (indicate)	13	2.16	3.25
Ophthalmologist	12	1.99	3
Web articles, professional websites	12	1.99	3
Angiologist	9	1.49	2.25
Thematic courses, preparatory works for birth	4	0.66	1
Books, magazines, booklets	4	0.66	1
Friends / acquaintances	2	0.33	0.5
Social media	2	0.33	0.5
Difficult to answer	1	0.17	0.25
Total	**603**	**100**	**150.75**

After that the respondents were asked several questions to identify their understanding on CS and VD. All respondents have answered a number of judgments, indicating how much they agreed to each of them.

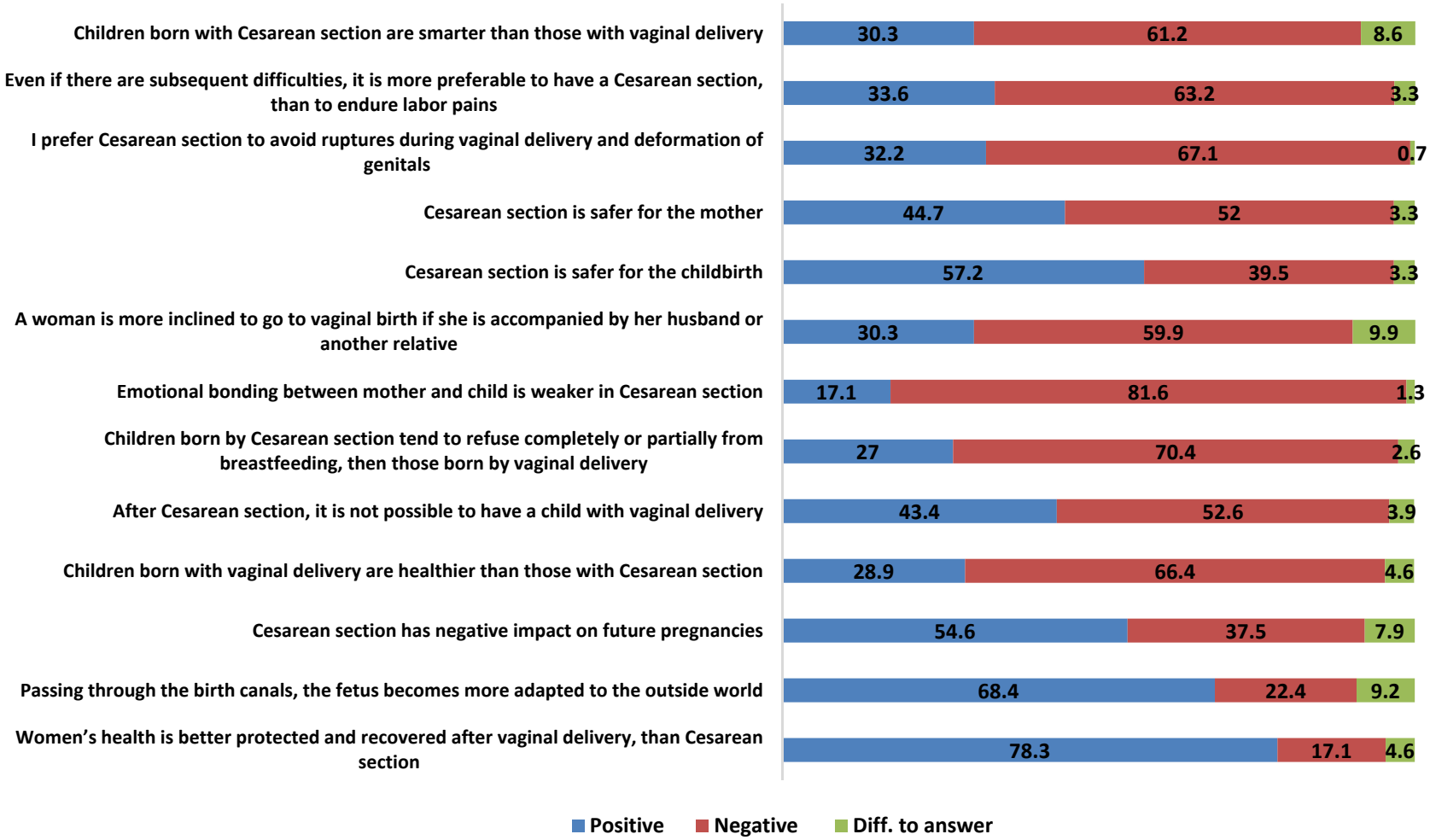
Table 13. To what extent do women with CS and VD agree with the considerations	Women with vaginal delivery					Women with Cesarean section				
	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Diff.	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Diff.
Cesarean section is more convenient as you can decide the date of birth of your child	6.5%	29.4%	21.4%	41.9%	0.8%	15.1%	23.7%	16.4%	44.7%	0.0%
Cesarean section is a man made and artificial method using, whereas vaginal birth is a natural process	71.0%	23.4%	2.8%	1.6%	1.2%	65.1%	27.6%	3.9%	2.6%	0.7%
Vaginal delivery is an outdated method, whereas Cesarean section is a more advanced one	2.0%	4.0%	10.9%	81.0%	2.0%	3.3%	10.5%	11.2%	75.0%	0.0%
Women's health is better protected and recovered after vaginal delivery, than Cesarean section.	73.4%	19.8%	4.4%	1.2%	1.2%	52.6%	25.7%	9.2%	7.9%	4.6%
I prefer Cesarean section to avoid ruptures during vaginal delivery and deformation of genitals	2.4%	12.1%	12.5%	68.5%	4.4%	8.6%	23.7%	16.4%	50.7%	0.7%
Cesarean section should be performed only in the case of medical indication	90.3%	6.5%	2.0%	1.2%	0.0%	84.2%	10.5%	2.6%	2.6%	0.0%
Cesarean section is safer for childbirth	4.4%	21.4%	33.1%	34.3%	6.9%	15.8%	41.4%	25.0%	14.5%	3.3%
Cesarean section is safer for the mother	1.6%	22.6%	30.2%	39.5%	6.0%	7.2%	37.5%	28.3%	23.7%	3.3%
Even if there are subsequent difficulties, it is more preferable to have a Cesarean section, than to endure labor pains.	2.4%	7.7%	10.5%	77.8%	1.6%	10.5%	23.0%	15.1%	48.0%	3.3%
Passing through the birth canals, the fetus becomes more adapted to the outside world	55.6%	33.1%	6.5%	1.6%	3.2%	29.6%	38.8%	15.1%	7.2%	9.2%
Cesarean section is more trendy and suggests that the family is well-off	7.3%	23.8%	15.3%	51.6%	2.0%	5.3%	25.7%	15.8%	51.3%	2.0%
Cesarean section helps to improve sexual intercourse, while after vaginal childbirth sexual gratification decreases	0.8%	6.9%	18.1%	49.2%	25.0%	0.0%	11.2%	19.1%	43.4%	26.3%

Cesarean crossing is more preferrable, as sexual intercourse resumes earlier than after the vaginal delivery	2.4%	10.9%	20.2%	41.1%	25.4%	1.3%	17.8%	21.7%	35.5%	23.7%
Cesarean section is more expensive, therefore less preferable	4.0%	20.6%	32.7%	33.1%	9.7%	3.9%	21.1%	32.2%	38.2%	4.6%
Children born by Cesarean section tend to refuse completely or partially from breastfeeding, then those born by vaginal delivery	12.9%	35.5%	14.9%	18.5%	18.1%	11.8%	15.1%	27.0%	43.4%	2.6%
Children born with Cesarean section are smarter than the ones born with vaginal birth	1.6%	2.4%	16.1%	64.5%	15.3%	10.5%	19.7%	27.6%	33.6%	8.6%
Children born with vaginal delivery are healthier than those with Cesarean section	27.0%	31.5%	18.5%	19.4%	3.6%	10.5%	18.4%	28.9%	37.5%	4.6%
Emotional bonding between mother and child is weaker in Cesarean section	19.4%	26.6%	22.6%	15.3%	16.1%	5.3%	11.8%	18.4%	63.2%	1.3%
Cesarean section has negative impact on future pregnancies	29.4%	45.6%	11.7%	7.3%	6.0%	13.8%	40.8%	17.1%	20.4%	7.9%
After Cesarean section, it is not possible to have a child with vaginal delivery	23.0%	33.5%	25.4%	9.3%	8.9%	13.8%	29.6%	38.8%	13.8%	3.9%
Twins or triplets should definitely be delivered by the Cesarean section	18.1%	27.8%	31.5%	16.1%	6.5%	25.0%	23.7%	27.0%	16.4%	7.9%
A woman is more inclined to go to vaginal birth if she is accompanied by her husband or another relative	15.3%	26.6%	19.0%	29.8%	9.3%	9.2%	21.1%	21.1%	38.8%	9.9%

Those judgments on which opinions of women with CS and VD have differed, were extracted from the information incorporated in Table 13. More positive and less positive answers have been groups as positive, and more negative and less negative answers – as negative.

Figure 20.1. The attitude of women who gave birth by vaginal birth to the following statements

Figure 20.2. The attitude of women who gave birth by Cesarean section to the following statements



When asked about the duration of hospital stay after CS, mean answer of the respondents was 6 days, while mean value for VD was 3 days. The most common response was 7 days for CS and 3 days for VD. In the case of CS, the highest and smallest number of days were 2 and 30 days, and in the case of VD - 1 and 8 days respectively.

Responses to the question about time required for woman to recover after Cesarean section and vaginal birth, based on women's subjective perception, were the following: for CS the average number of days indicated was 53, while for VD – the average value was 26 days. The most common answer was 30 days for CS and 7 days for VD. Both for CS and VD, the smallest number of days indicated by women for recovery was 0, and the highest number of days was 365.

To answer the question of how much women need before they can have sexual intercourse after Cesarean section and after vaginal delivery, the responses were the following: for CS, the average number of days indicated was 48, while for VD – the average value was 39 days. The most common response was 40 days both for CS and VD. In the case of CS, the highest and smallest number of days were 7 and 365 days, and in the case of VD - 3 and 210 days respectively.

To answer the question of how much women need before they can get pregnant after Cesarean section and after vaginal delivery, the responses were the following: according to the respondents, to get pregnant after the CS, 27 months on average is required, and after VD – 12 months. The most common response was 36 months for CS and 12 months for VD. In both cases, the minimum values were 0, the maximum value in the case of CS was 60 months, and in the case of VD - 36 months.

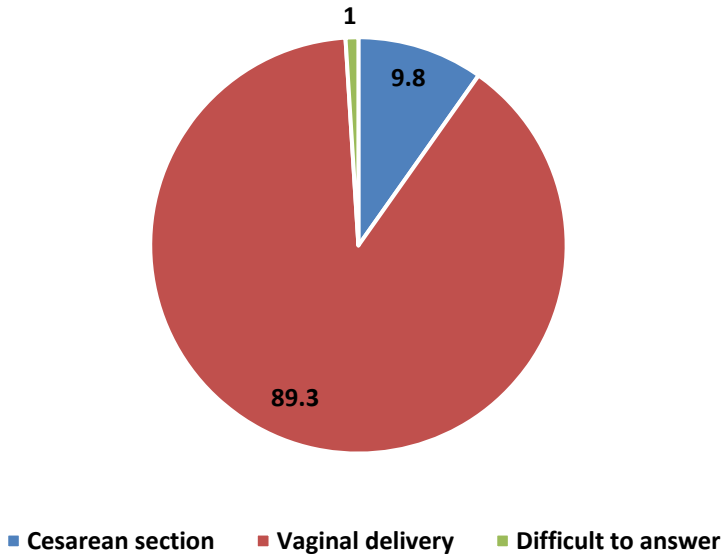
The respondents expressed their opinion on a number of judgments about selection of childbirth method and doctor's approaches. The results are presented below in **Table 14.**

Table 14. Women's opinions about selection of childbirth method and doctor's approaches	**Strongly agree**	**Somewhat agree**	**Somewhat disagree**	**Strongly disagree**	**Not applicable**	**Difficult to answer**	**Total**
Doctors are more interested in the Cesarean section, as they receive more income	12.8	24.8	24.3	36.0	0.3	2.0	100.0
Doctors are more interested in Cesarean section, as it has shorter duration	8.8	24.5	22.3	41.3		3.3	100.0

Doctors encourage women that Cesarean section is an easy and comfortable method of delivery	4.5	15.8	24.5	53.3	0.5	1.5	100.0
Doctors explain the advantages of vaginal childbirth and encourage women to give birth in a natural way	67.5	25.0	4.0	3.0	0.3	0.3	100.0
Even if the last pregnancy of woman ends up in Cesarean section, it is the same, doctors claim that vaginal delivery is possible	12.8	33.5	20.3	18.5		15.0	100.0
If the woman and her relatives want Cesarean section, the doctor accepts it without arguing it	17.8	23.5	28.0	25.3		5.5	100.0
If they explainedme potential complications associated with Cesarean section at the Women's consultation, I would have definitely gone for vaginal delivery.	39.0	10.0	5.8	15.0	27.3	3.0	100.0
If they explained potential complications associated with Cesarean section at maternity ward, I would have definitely chosen vaginal delivery.	36.0	11.8	4.8	16.8	27.5	3.3	100.0

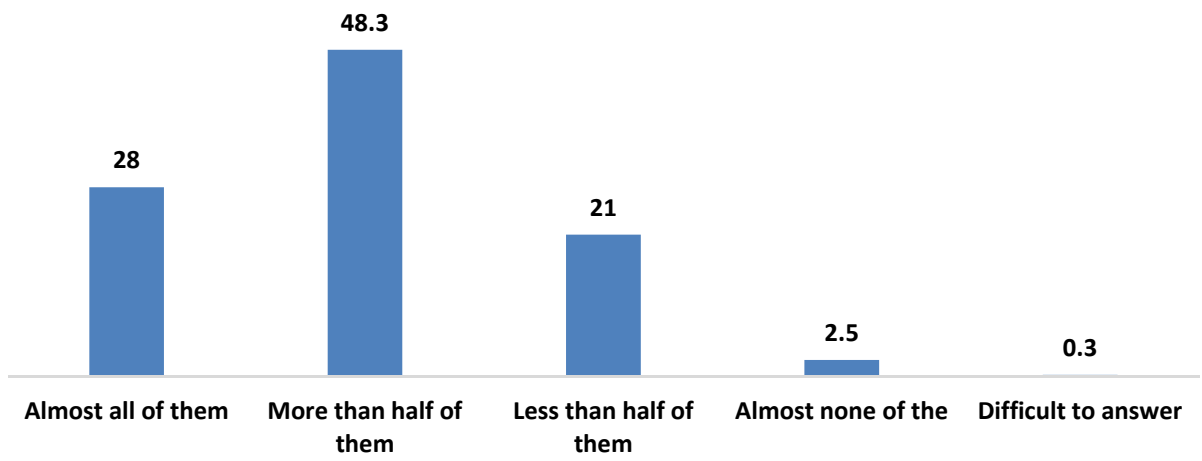
As for the attitude of respondents to CS and VD in general, 89.3% of surveyed women find vaginal delivery more acceptable, while 9.8% - Cesarean section.

Figure 21. Women's attitude toward modes of delivery



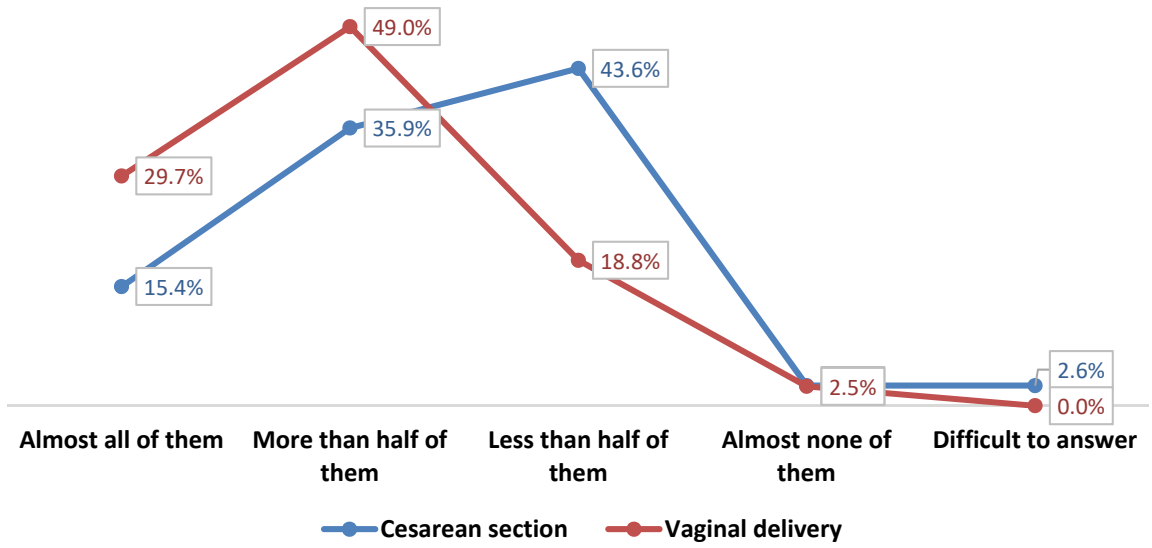
Most respondents said that women in their circle mostly gave birth in the same way as themselves. Thus, in response to the question "What part of your friends, relatives choose the same method of delivery as you?", 28.0% of respondents answered "Almost all of them", 48.3% said "More than half", 21.0% - "Less than half", and 2.5% said "Almost no one".

Figure 22. The circles of those giving birth by the same method



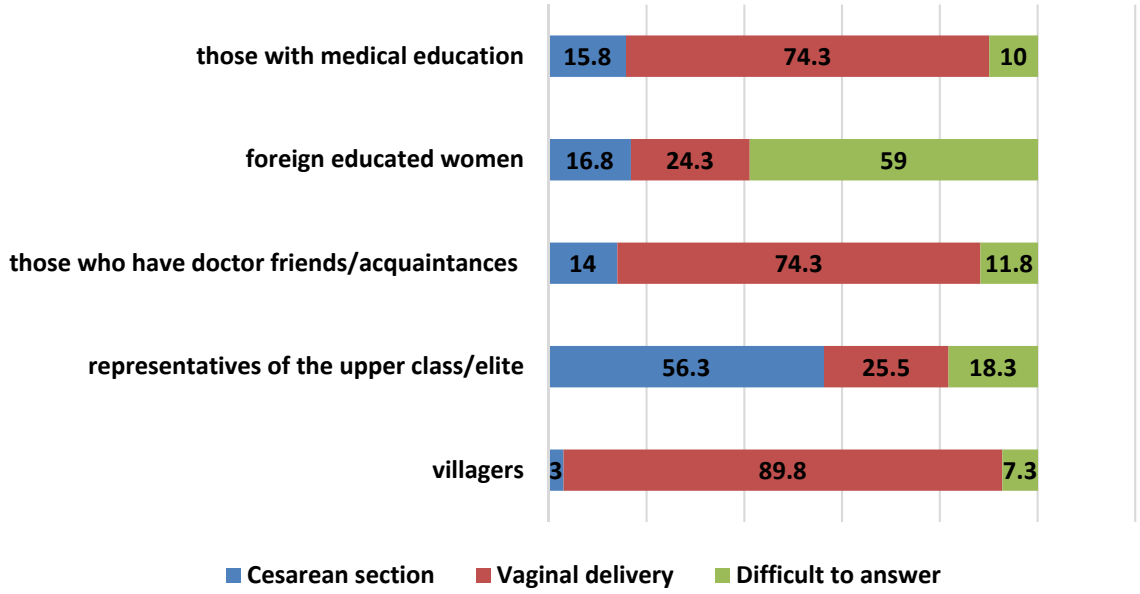
It has to be noted that the similarity with friends, relatives, is more notable among those giving preference to vaginal delivery, than to Cesarean section.

Figure 23. Environment and own preferences



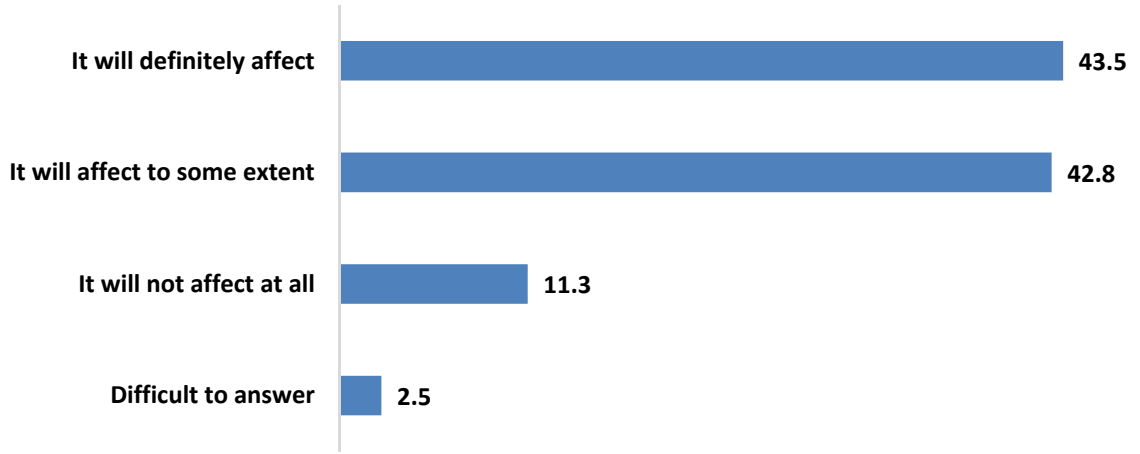
We tried to approximately identify the images of women, at the level of perceptions, who give preference to diverse methods of delivery. Therefore, according to respondents, representatives of elite and those with foreign education prefer CS methods, while rural population, those who have medical education or doctor friends – VD.

Figure 24. Perceptions on women giving birth by various methods



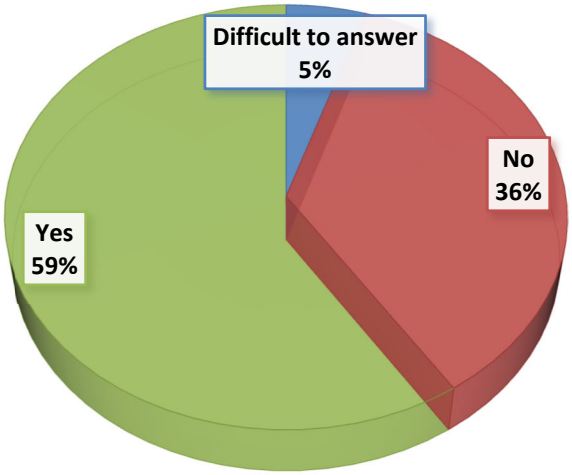
As a next step, issues pertaining to Maternity school were clarified. When asked whether preparatory childbirth classes attended by women before delivery would affect the choice of delivery method, the answers have been distributed as follows: 43.5% said it would definitely have an effect, 42.8% indicated some effect, and 11.3% - no effect.

Figure 25. Impact of training courses on the choice of delivery method



Interestingly, although 86.3% of respondents agreed that the courses would affect their choice of delivery method, however, not everyone expressed willingness to participate in the courses. Thus, when asked whether you or your spouse would want to attend preparatory classes before childbirth, 59.3% of respondents gave positive answer, 35.8% - negative answer, and 5.0% had difficulty to answer.

Figure 26. Willingness to participate in training courses



Consequently, the above-said comes to prove the need for consolidated and every-day collaboration of various institutions when it comes to choosing the delivery method. There is a need to evolve awareness activities among women and their relatives with wide engagement of mass media.

Summary and recommendations

Summarizing survey findings, it should be noted that the number of Cesarean sections globally amounted to 21.1%[21], and in Armenia it reaches as high as 37,5%[22]. Given the circumstance that in 2000 the indicator was 7.2%, it has grown almost 5 times over the past twenty years. A number of objective and subjective factors (doctors avoiding risks, women's request etc.) contribute to the increase (surge in assistive reproductive technologies and their use in obstetric-gynecological practice, increased prevalence of certain severe pathologies, an increase in the number of primiparous women above 35, continuous increase in the number of pregnant women with one or more Cesarean sections, increased fetal indications, etc.). The study allowed to identify a host of causes of Cesarean sections, which, through the use of appropriate leverages, can help achieve a decrease in the number of Cesarean sections.

Inconsistence of Cesarean section indications: According to medical card analyses, 81.4% of CS indications are obstetrical-gynecological (mostly uterus scar, severe preeclampsia), 46.8% - fetal indications (mostly frank breech or footling breech of fetal presentation and fetal distress) and 24.2% - non-obstetrical indications (mostly short-sightedness and laser vision correction) and so on. 69.0% of doctors avoid natural delivery process after uterus scar is identified. 36.7% of participants of quantitative survey often performs CS in the case of mild preeclampsia due to the lack of appropriate obstetrical conditions (unprepared birth canals). As proved by qualitative interviews, sometimes related medical experts indicate CS in the case of varicose veins or after laser correction of vision, however not all respondents agree that these are clear indications for CS, as confirmed by obstetrician-gynecologists, vascular surgeons and ophthalmologists as well. In certain cases (in particular with extragenital pathologies, such as cardiovascular diseases etc.) international (European, American, Russian) approaches are applied, which also do not ensure coherence. In the absence of coherence or univocality, doctors feel defenseless against adverse consequences ensuing from taking additional risks, therefore they prefer to perform CS, in an attempt to avoid those.

In view of the aforementioned, there is a need to elaborate and introduce (national) guidelines and protocols for delivery management with pelvic presentation, large fetus and subsequent to Cesarean section; clarify the conditions of vaginal delivery, develop new protocols (for pathologies where national guidelines are missing) on the basis of existing obstetrical

[21] https://www.who.int/news/item/16-06-2021-caesarean-section-rates-continue-to-rise-amid-growing-inequalities-in-access
[22] Statistical Yearbook "Maternal and Child Health", Armenia 2022, Yerevan. M 920 National Institute of Health after named after academician S. Avdalbekyan, MoH, 2022, 118 pages

clinical guides (for management of preeclampsia, intrauterine growth restriction, preterm deliveries, multiple gestation etc.), with clear CS indications set forth;

Communicate with the National Association of Ophthalmologists recommending to develop and present a Pregnancy Management Guide for women with visual impairments;

Guidelines and protocols should contain clear wording and approved both by the Ministry of Health and Ministry of Justice, to ensure legal basis for their application;

The protocols should be mandatory for all doctors and medical centers functioning in the Republic of Armenia;

To set up a working group under the Obstetrics and Gynecology Board of the RA Ministry of Health to deal with the development of guides and protocols and monitor implementation thereof.

Insufficient awareness of primary health care providers about obstetrical and non-obstetrical indications of Cesarean section. Based on qualitative interviews' findings, sometimes primary health care providers (especially in the regions) develop a delivery plan with Cesarean section, which is avoidable (e.g. wrapping of umbilical cord, multiple pregnancy, conclusion of a related medical specialist, etc.). In addition, the method of delivery is highly influenced by the prenatal doctor (44.1%) and the delivery doctor (36.7%).

Highlighting the pivotal role of the primary health care in the selection of delivery method, it is crucial to conduct training with the health care providers of the level concerned (especially from regions) aiming to update their knowledge and introduce to robust methodologies; To this end, it is vital to collaborate with the faculties dealing with continuous professional development to arrange regular training courses aiming to update primary health care providers' knowledge and skills;

The frequency of handling complicated deliveries is quite low, as many inpatient doctors do not possess the skills to manage complicated deliveries. This can be predicate to the lack of appropriate conditions (equipment, human resources, etc.). Thus, over the last 3 years, around 45% of the interviewed doctors managed up to 10 deliveries with pelvic presentation, 3% - 10-19 deliveries, about 1.5% - 20-29, and nearly 3.8% - more than 30 deliveries. Accordingly, during last three years, approximately half of the doctors surveyed did not manage a labor with pelvic presentation. Vacuum extraction has

been attended by 31 percent of interviewed doctors, most of them having 1-2 such cases. Only 21% of the surveyed doctors reported fully mastering vacuum extraction skills and having performed it independently. 10.8% of surveyed doctors indicated one or two attempts of a delivery with forceps extraction in the last three years. According to qualitative interviews, particularly in regional maternity hospitals, there is a lack of relevant specialists to manage complicated deliveries, such as neonatologists. During qualitative interviews on the experience of managing complicated labor, doctors pointed out that not only the medical staff lacked training or experience (in terms of content, quantity and knowledge/ skills), but also technical refurbishment was yet another hindrance.

> ***There is a need to conduct regular training courses with doctors managing labor, which will not only be theoretical, but also practical to inform about changes in sector-specific approaches, while teaching them complicated childbirth management skills (simulation courses).***
>
> ***Retrofit medical institutions (particularly in regions) with respective equipment, conditions and staff, who will ensure successful process of complicated deliveries with informed obstetrician-gynecologists. In regional clinics, in particular, there is a need to ensure full-time presence of specialized medical doctors (neonatologists etc.) and surgical staff at operating rooms (define shift work, rather than calling from home).***

C-sections continue to be practiced at the request of pregnant women. 4.4% of interviewed doctors indicated they would accommodate pregnant woman's request to perform CS. Examination of medical cards did not reveal any case of Cesarean section at the expectant mother's request, since it’s not explicitly indicated in the medical card. According to quantitative data obtained from women, the causes of Cesarean sections are women's condition: obstetrical-gynecological problems (43.2%), fetal indications (30.1%), indications of a related medical specialist (19.9%) and the request of woman’s relatives (6.8%). Given the magnitude of statistical error, it can be stated that the rate of Cesarean sections without indications is at 8–10%.

> ***To reduce the number of Cesarean sections performed at the request of a woman and her family, it is recommended to prioritize awareness-building activities.***

The methods aimed at raising awareness among women are not always effective, resulting in knowledge gap among women. According to qualitative interviews, more than half of women lacked knowledge about modes of delivery, as a result of which they were mostly guided by doctor's recommendation. Therefore, they cannot have effective discussions with their doctors on childbirth interventions and make a decision on medical and even non-

medical indications of Cesarean section, without knowing about the actual risks and benefits. Aiming to raise awareness, “Maternity Schools” are operating under the Women’s Consultations, which do not prove to be effective, according to study findings. As revealed by qualitative interviews, not all pregnant women attend the Maternity Schools operating under WCs due to their busy schedule, coupled with local mentality (mother-in-law doesn’t allow, they feel embarrassed, etc.). Although 86.3% of the interviewed women agree to this or that extent that the courses will impact the choice of delivery method, however to the question whether she or her husband would like to attend preparatory classes before delivery was answered positively by 59.3% of the respondents, 35.8% responded negatively, and 5.0% have difficulty answering.

> ***Increasing awareness can boost patients’ participation in the general decision-making process. To draft educational materials for pregnant women about the advantages and disadvantages of vaginal delivery and Cesarean section.***
>
> ***To increase the attractiveness of Maternity Schools for pregnant women. The courses will be conducted online as needed. On the one hand, this will tackle the challenges related to time and distance, and on the other hand, the problems engendered by the mentality.***
>
> ***To conduct similar training courses for the spouses of pregnant women, as well as for other family members (mother-in law, etc.). In this specific case, online courses can produce higher outcomes if the anonymity of participants is guaranteed.***
>
> ***To implement large-scale awareness raising activities, using media, television, Internet or print media resources. From this perspective, broadcasting a TV program series “Mothernity School” by national TV on weekly basis could have positive outcomes by channeling necessary information to the target audience of the society.***
>
> ***In this context, it is equally important to organize awareness training courses for journalists to train them how to intelligibly and impartially cover topics related to pregnancy and childbirth processes.***

Women make a decision to have a Cesarean section (without indication) predominantly because of pain and fear factors. 8.5 percent of women who gave birth vaginally expressed willingness to replace it with Cesarean section, where the majority explained that they did not want to have labor pain, lacerations of birth canals and deformation of genitals, experience the stressful atmosphere of maternal ward and anxiety. As qualitative data comes to prove, during labor women long for a supportive, kind and respectful attitude. This might explain

women's wish to choose the WC obstetrician-gynecologist and have the baby under their supervision. On the other hand, study findings confirm that lack of prenatal psychologists in Women's Consultations and maternity hospitals adds up the burden and tension of obstetrician-gynecologists.

> ***Involvement of prenatal psychologists within or beyond the scope of Maternity School can improve mental state of pregnant women, and consequently the overall process of childbirth. In collaboration with the obstetrician-gynecologist, relevant medical specialists will deal with the issue thus reducing the workload of the gynecologist. At the same time, special skills and professional capacities are required.***

The availability of a differentiated and higher priced financial compensation mechanism also contributes markedly to the increased rate of Cesarean sections, whereby motivating both the medical institution and the doctor to perform a C-section. The amount of bonus payments to obstetrician-gynecologists has been 11 times higher for CS than for natural childbirth[23]. According to the doctors participating in in-depth interviews, childbirth financing system in Armenia is structured in a way to reduce the incidents of Cesarean sections, since after a set number of Cesarean sections the size of financing remains the same as that for vaginal birth. However, the existence of a bonus system, as well as the focus group interviews with women come to prove that doctors do have financial motivation.

> ***It is proposed to change the principles of financing the area of obstetrics, for medical staff, especially obstetrician-gynecologists, providing the same fee per childbirth, regardless of delivery method (vaginal or CS).***

[23] Tadevosyan et al. BMC Pregnancy and Childbirth (2019) 19:2 https://doi.org/10.1186/s12884-018-2158-6.

Annexes: Interview questionnaires

Questionnaire for conducting a quantitative survey with women who gave birth in the last 3 years

Hello, I am _____ from "Advanced Public Research Group" non-governmental organization.

At the behest of the United Nations Population Fund, we are conducting a public opinion survey with the main goal of identifying the prevalence rate of Cesarean section in Armenia.

Your participation in this survey is **voluntary**, however, your opinion is valuable for us, as your sincere answers will greatly support the credibility of research findings. The survey is anonymous. Your answers will not be published separately, but they will be analyzed and presented in combination with your responses to other surveys.

1. How long have you been married? _____ years (*Interviewer: if less than half a year, we round down, if more – round upwards, for example, if it is 3 years 2 months, we indicate 3 years, if 4 years and 7 months, we put down 5 years)*

2. How many children do you have? _____ (Interviewer: *refers only to the children she gave birth, not counting husband's or adopted children.*)

3. Please indicate the method of your childbirth, starting with the eldest (*from the 1st birth*). Please indicate birth date of children and your age at each birth.

3.1. Child's date of birth	3.2. 1. Vaginal delivery 2. Cesarean section	3.3. Mother's age at childbirth
1.	1. 2.	years old
2.	1. 2.	years old
3.	1. 2.	years old
4.	1. 2.	years old
5.	1. 2.	years old
6.	1. 2.	years old
….	1. 2.	years old

4. Did you have a vaginal delivery or Cesarean section?
   1) I only had a vaginal delivery.
   2) I only had Cesarean section.
   3) I had both vaginal delivery and Cesarean section.

5. Who has managed the labor/C-section - the selected doctor, or the doctor on duty?
   1) The doctor I chose
   2) The doctor on duty

3) The doctor I chose was on duty that day

6. If you had a Cesarean delivery, what method did you choose for the next child subsequent to Cesarean section, or which one would you choose for your next pregnancy?

	Vaginal delivery	Cesarean section	Didn't have/not planning
Previous experience after Cesarean section	1	2	3
Planning after Cesarean	1	2	3

7. If you had vaginal delivery, did you have complications after childbirth? (*4=1*)
1) Yes
2) No
3) Refuse to answer/ *do not read*/

8. How much time was required to recover after vaginal birth? _____ days *(interviewer: if a month is mentioned, it should be converted into days (4=1).*

9. If the time is reversed, would you rather replace vaginal birth with C-section (*4= 1*)?
1) Yes
2) No
3) Difficult to answer (proceed to Q11)

10. If yes, then why *(indicate all listed options) (9=1)*
1) So that I did not have labor pains
2) So that I didn't undergo frequent and painful vaginal examinations during delivery
3) So that I didn't have to feel the stress in the delivery ward and the anxiety
4) So that my child did not experience any problems during vaginal delivery
5) So that I did not have laceration of birth canals and deformation of the genitals
6) In order to avoid postpartum complications – prolapse of uterus, vagina, incontinence or damage to rectum.
7) Vaginal delivery poses higher risk to the mother and the child
8) So that they could tie my tubes during the Cesarean section
9) Other /indicate/_____
10) Difficult to answer

11. If no, then why *(indicate all listed options) (9=2)*
1) The pain of vaginal delivery is more acceptable than the complications of Cesarean section
2) During vaginal birth the growth of fetus is complete, while during Cesarean section it isn't
3) Children born with vaginal delivery are healthier than those with Cesarean section
4) Financially vaginal birth is more affordable, whereas in the case of Cesarean section additional financial costs incur
5) Vaginal birth is a natural process, while Cesarean section is man induced and artificial method
6) Normal vaginal delivery is easy and protects women's health
7) Women recover faster after vaginal birth and return to their everyday life
8) Likelihood of serious problems is less in vaginal birth
9) The beginning of breastfeeding is more successful both for the mother and the child

10) I want to have more children, so in order to avoid complications in further pregnancies
11) Other/ specify/ _____
12) Difficult to answer

12. If you had a Cesarean section, did you have subsequent complications (*4 = 2*)?
1) Yes
2) No
3) Refuse to answer/ *do not read*/

13. How much time was required to recover after vaginal birth? _____ days (interviewer: if a month is mentioned, it should be converted into days *(4=2)*.

14. Why did you have your child / children with Cesarean section (4=*2*)?
1) Inconvenient irregular position of fetus, breech presentation
2) Supposed weight of the fetus
3) My physiological state, I didn't have a dilation, etc.
4) I was older
5) Ophthalmologist had recommended
6) Cardiologist had recommended
7) Hematologist had recommended
8) Another physician had recommended (indicate) _____
9) The reason is the negative experience of maternal and fetal mortality during vaginal delivery.
10) It was a multi-fetus pregnancy
11) I was scared of labor pains
12) My relatives demanded C-section as we believed that the life of mother and infant were not threatened in Cesarean section
13) I had Cesarean section previously
14) Unsuccessful past experience of vaginal birth
15) Cesarean section is more trendy
16) Vaginal birth is an obsolete method
17) Everyone in my circles had their baby with Cesarean section
18) We wanted to choose the date of child's birth
19) Other /indicate/_____
20) Difficult to answer
21) Refuse to answer

15. /If 12 = 14, then / If the previous vaginal delivery had an adverse outcome, please specify the reason:
1) Adverse outcome for mother /please specify/ _____
2) Fetal death during childbirth
3) Infant's death during the first 6 days
4) Labor trauma of the newborn
5) Child's disability caused by delivery trauma
6) Other/ specify/ _____
7) Difficult to answer

16. If the time is reversed, would you prefer to replace CS with vaginal birth ? (*4= 2*)
1) Yes
2) No
3) Difficult to answer/ proceed to Q19/

17. If yes, then why (*16= 1*)
1) More complications from Cesarean section as compared to normal vaginal birth
2) Women get health issues because of Cesarean section

3) I would not want to have a scar on my abdomen
4) Children born with Cesarean section are not as healthy as the ones born with vaginal birth
5) Recovery takes longer after Cesarean section, than in the case of vaginal delivery
6) They stay longer in the hospital after Cesarean section than after vaginal birth
7) Other/ specify/ _____
8) Difficult to answer

18. If no, then why? (*15*=*2*)
1) Recovery of sexual relations after vaginal delivery takes time
2) After vaginal delivery women often have a vaginal reconstructive surgery
3) Mentally I am not ready for vaginal birth
4) Physically I am not ready for vaginal birth (I have certain health issues)
5) With Cesarean section I feel safer that nothing will happen to me or my child
6) With Cesarean section, you do not have to take the position of a woman in labor
7) The duration of Cesarean section is shorter that that of vaginal delivery
8) It's preferable to have complications of Cesarean section, then endure the pain of vaginal birth
9) In the case of Cesarean section, you can decide on the date of the child's birth, choose a beautiful date and get more prepared
10) Other/ specify/ _____
11) Difficult to answer

19. To what extent did these groups or sources of information affect your choice of delivery method (in general)?

	Significantly	**To some extent**	**Not so much**	**Didn't affect at all**	**Not applicable**
1) Doctor managing the pregnancy	1	2	3	4	97
2) Doctor managing the labor	1	2	3	4	97
3) Another physician (ophthalmologist, angiologist or other)	1	2	3	4	97
4) Husband / partner	1	2	3	4	97
5) Parents / relatives	1	2	3	4	97
6) Childbirth experience of friends/relatives	1	2	3	4	97
7) Thematic courses, birth preparatory courses	1	2	3	4	97
8) Web articles, professional websites	1	2	3	4	97
9) Television	1	2	3	4	97
10) Social media	1	2	3	4	97
11) Books, magazines, booklets	1	2	3	4	97

20. During your recent delivery, who or what helped you choose the method of delivery *(indicate up to 3 options, starting from the most important)*?

1) Doctor managing the pregnancy
2) Doctor managing the labor
3) Ophthalmologist
4) Angiologist
5) Other doctor /specify/ _____
6) Husband / partner
7) Parents / relatives
8) Friends / acquaintances
9) Thematic courses, preparatory works for birth
10) Web articles, professional websites
11) Television
12) Social media
13) Books, magazines, booklets
14) Other

21. Now I will proceed to reading arguments about Cesarean section, please let me know how much you agree with each of them:

	1. Strongly agree, 2. Somewhat agree, 3. Somewhat disagree 4. Strongly disagree, 98. Difficult to answer
Cesarean section is more convenient as you can decide the date of birth of your child	1. 2. 3. 4. 98.
Cesarean section is a man made and artificial method, whereas vaginal birth is a natural process	1. 2. 3. 4. 98.
Vaginal birth is an outdated method, whereas Cesarean section is a more advanced one	1. 2. 3. 4. 98.
Women's health is better protected and recovered after vaginal delivery, then after the Cesarean section.	1. 2. 3. 4. 98.
I prefer Cesarean section to avoid ruptures during vaginal birth and deformation of genitals	1. 2. 3. 4. 98.
Cesarean section should be performed only in the case of medical indication	1. 2. 3. 4. 98.
Cesarean section is safer for childbirth	1. 2. 3. 4. 98.
Cesarean section is safer for the mother	1. 2. 3. 4. 98.

Even if there are subsequent difficulties, it is more preferable to have a Cesarean section, than to endure labor pains	1. 2. 3. 4. 98.
Passing through birth canals, the fetus becomes more adapted to the outside world	
Cesarean section is trendy and suggests that the family is well-off	1. 2. 3. 4. 98.
Cesarean section helps to improve intercourse, while after vaginal delivery sexual gratification decreases	1. 2. 3. 4. 98.
Cesarean section is more preferable, as sexual intercourse resumes earlier than after the vaginal delivery	1. 2. 3. 4. 98.
Cesarean section is more expensive, therefore less preferable	1. 2. 3. 4. 98.
Children born by Cesarean section tend to refuse completely or partially from breastfeeding than those born by vaginal delivery	1. 2. 3. 4. 98.
Children born with Cesarean section are smarter than the ones born with vaginal birth	1. 2. 3. 4. 98.
Children born with vaginal delivery are healthier than those with Cesarean section	1. 2. 3. 4. 98.
Emotional bonding between mother and child is weaker in Cesarean section	1. 2. 3. 4. 98.
Cesarean section has negative impact on future pregnancies	1. 2. 3. 4. 98.
After Cesarean section, it is not possible to have a child with vaginal delivery	1. 2. 3. 4. 98.
Twins or triplets should definitely be delivered by the Cesarean section	1. 2. 3. 4. 98.
A woman is more inclined to go to vaginal birth if she is accompanied by her husband or another relative	1. 2. 3. 4. 98.

22. In your understanding, how long women stay in hospital after Cesarean section and labor? (98 Difficult to answer)

1) Cesarean section _____days
2) Vaginal delivery _____days

23. In your understanding, how long does it take for women to recover after Cesarean section and labor? (98 Difficult to answer)
1) Cesarean section _____days
2) Vaginal delivery _____days

24. When a woman can resume sexual intercourse after Cesarean section and vaginal delivery? (98 Difficult to answer)
1) Cesarean section _____days
2) Vaginal delivery _____days

25. When a woman can get pregnant subsequent to Cesarean section and vaginal delivery (98 Difficult to answer)
3) Cesarean section _____days
4) Vaginal delivery _____day

26. Now I will read a few arguments about the choice of delivery method and the doctor's approaches, please indicate how much you agree with each of them:

	1. Strongly agree, 2. Somewhat agree, 3. Somewhat disagree 4. Strongly disagree, 97. Not applicable, 98. Difficult to answer
Doctors are more interested in performing Cesarean section, since they receive higher profits	
Doctors are more interested in performing Cesarean section since it has lasts shorter	
Doctors encourage women saying that Cesarean section is an easy and comfortable method of delivery	
Doctors explain the advantages of vaginal childbirth and encourage women to give birth naturally	
Even if the last pregnancy of a woman ends up in Cesarean section, it is the same, doctors claim that vaginal delivery is possible	
If the woman and her relatives want Cesarean section, the doctor accepts it without arguing it	
If they explained me potential complications associated with Cesarean section at the	

Women's consultation, I would have definitely gone for vaginal delivery.	
If they explained potential complications associated with Cesarean section at maternity ward, I would have definitely chosen vaginal delivery.	

27. In general, is Cesarean section more acceptable for you, than vaginal delivery?
    1) Cesarean section
    2) Vaginal delivery

28. In your opinion, what part of your friends, relatives choose the same method of delivery as you?
    1) Almost all of them
    2) More than half of them
    3) Less than half of them
    4) Almost none of them
    5) Difficult to answer

29. In your opinion, what method do the representatives of the following groups prefer for childbirth?

	1. Vaginal delivery 2. Cesarean section
1) Those with medical education	1. 2.
1. Women with foreign education	1. 2.
2. Those whose close friends/relatives are doctors	1. 2.
3. Elite	1. 2.
4. Rural population	1. 2.

30. If a woman attends prenatal preparatory classes, will it affect her choice of delivery method?
    1) It will definitely affect
    2) It will affect to some extent
    3) It will not affect at all
    4) Difficult to answer

31. Would you like to attend preparatory classes with your husband before the delivery?
    1) Yes
    2) No
    3) Difficult to answer

Respondent's social-demographic data

32. Your age.
1) Up to 20 years
2) 21-25
3) 26-30
4) 31-35
5) 36-40
6) 41-45
7) 46-50
8) 51 and above

33. Your husband’s age.
1) Up to 20 years
2) 21-25
3) 26-30
4) 31-35
5) 36-40
6) 41-45
7) 46-50
8) 51 and above

34. Your education
1) Junior secondary education
2) Secondary education
3) Secondary vocational education / incomplete higher education
4) Higher education / without Master's degree
5) Higher education / Master’s degree
6) Postgraduate / Academic degree

35. Your husband's education
1) Junior secondary education
2) Secondary education
3) Secondary vocational education / incomplete higher education
4) Higher education / without Master's degree
5) Higher education / Master’s degree
6) Postgraduate / Academic degree

36. Type of settlement
1) Urban
2) Rural

37. Region

38. Settlement

39. Where did you undergo pregnancy control last?
/Incorporate all versions in the programming base/

40. Where did you give birth last?
/Incorporate all options in the data base/

41. Employment
1) Employer, director, owner
2) Mid-level manager
3) Employee
4) Self-employed / no employees /

5) Housekeeper / unemployed

42. Indicate your occupation industry
1) Education and science, culture and sport
2) Health
3) Social and psychological work
4) Information technologies
5) Industry, manufacturing
6) Public utility and renovation services (electricity, gas, waste collection, construction, tailoring, etc.)
7) Wholesale or retail trade
8) Service: beauty salon, etc., brokerage
9) Mass media
10) Banks / finance / credit institutions
11) State, public administration / ministries, police, National Assembly etc.
12) Civil society organization /NGO, Foundation
13) Other/ specify/_____
98) Difficult to answer
99) Refuse to answer

43. How much is the average monthly income of your family?
1) Up to 65000 AMD
2) from 65001 to 150000 AMD
3) from 150001 to 350000 AMD
4) 350001- 500000 AMD
5) 500001 - 750000 AMD
6) 750001 - 1000000 AMD
7) Over 1000001 AMD

44. How would you describe the economic status of your family?
1) Very high
2) Above average
3) Average
4) Below average
5) Very low
6) Difficult to answer
7) Refuse to answer

45. In your opinion, to what extent social surveys reflect public opinion?
1) Fully reflect
2) Somewhat reflect
3) They do not reflect that much
4) They do not reflect at all
5) Difficult to answer

Thank you for your participation in the survey.

SELF-ADMINISTERED QUESTIONNAIRE FOR OBSTETRICIAN-GYNECOLOGISTS

1. How many years of work experience do you have? _____
2. As an obstetrician-gynecologist, you are more engaged…
    1) In obstetrics
    2) In gynecology
    3) Equally

3. You are…
    1) Surgical doctor/1st operating doctor
    2) Assistant or 2nd operating doctor
    3) I do not participate in surgeries

4. Where do you work?
    1) Women's consultation
    2) In adult polyclinic
    3) In an Obstetrics-Gynecological inpatient facility
    4) At secondary level inpatient facility
    5) At tertiary level inpatient facility
5. Do you conduct prenatal care of pregnant women at Women's Consultation?
    1) Yes
    2) No
6. What is the average number of pregnancies you manage on annual basis? _____
7. What is the average number of deliveries you manage on annual basis? _____
8. If the question 6 = 0, then what is the average number of pregnant women you refer to Cesarean section annually? _____ / Move to Q11 /
9. What is the average number of Cesarean sections you perform on annual basis?_____
10. When performing Cesarean section, do you...
    1) conduct main work independently?
    2) participate in the Cesarean section, but don't do the main work?
    3) refer the pregnant woman, but do not participate in the C-section?
    4) neither participate or refer to Cesarean section?

11. How many emergency Cesarean sections on average do you perform annually **before delivery** /if s/he doesn't attend delivery, then how many of your pregnant women, on annual basis, have an emergency Cesarean sections **before delivery?** _____.

12. How many emergency Cesarean sections on average do you perform annually **during labor**//if s/he doesn't attend delivery, then how many of your pregnant women, on annual basis, have an emergency Cesarean sections **during labor**? _____
13. How many planned Cesarean sections do you have annually? _____
14. How many cases of pelvic presentation choosing to deliver, did you have in the last 3 years?_____
15. How many vaginal/natural deliveries with pelvic presentation did you manage in the last 3 years? _____ /If s/he does not manage delivery, then/ How many pregnant women having pelvic presentation did you refer to vaginal/natural delivery? _____ /If s/he does not manage pregnancy, then move to Q22 /

16. How many cases of vacuum extraction did you have in the last 2 years? _____
17. How many deliveries through vacuum extraction did you manage in the last 3 years? _____
18. / If 16>0, then/ Did you perform it on your own?
    1) Yes
    2) No
19. How many times vacuum extraction was needed in the last 3 years? _____
20. How many deliveries through vacuum extraction did you manage in the last 3 years? _____
21. /If 19>0, then/ Did you perform it on your own?
    1) Yes
    2) No
22. Over the last 3 years, how many cases of vaginal deliveries subsequent to Cesarean section did you have?
23. In which cases do you prefer to perform Cesarean section or in which cases you refer?
    1) In the case of pelvic presentation
    2) In the case of delivery subsequent to Cesarean section
    3) At the request of pregnant woman
    4) Non-obstetrical indications
    5) Sever preeclampsia
    6) Other _____
    7) Difficult to answer

24. In the case of mild preeclampsia, how often do you refer pregnant women or perform Cesarean section?
    1) In almost all cases
    2) In more than half of the cases
    3) In less than half of the cases
    4) Almost never

25. In the case of severe preeclampsia, how often do you refer pregnant women or perform Cesarean section?
    1) In almost all cases
    2) In more than half of the cases
    3) In less than half of the cases
    4) Almost never
26. When do you perform Cesarean section most frequently? (do not ask the question, if 7=0)
    1) At daytime work hours
    2) During shift work
    3) During overtime work/night hours
27. In general, what method of delivery is more acceptable for you (we don't mean indications, but rather your perception as a whole)?
    1) Cesarean section
    2) Vaginal delivery
28. If Cesarean section is performed with non-obstetric indications, do you find the opinion of the specialist chosen by the pregnant women sufficient, or do you refer to your trusted specialist?
    1) I think the opinion of the specialist chosen by the pregnant woman is sufficient.
    2) You refer her to another medical specialist
29. What do you think contributes to the growth of Cesarean section rate? ———————— _____

30. What measures would you suggest to take to reduce the frequency of Cesarean sections?
31. The region where you work (if you work in more than one facility, in different regions, then mark the main one):
    1) Yerevan
    2) Aragatsotn
    3) Ararat
    4) Armavir
    5) Gegharkunik
    6) Lori
    7) Kotayk
    8) Shirak
    9) Syunik
    10) Vayots Dzor
    11) Tavush
32. Which settlement is your medical institution located in (an instruction for programming, to open respective medical institutions by regions/marzes)?

Republican Institute of POG

Research Center of Maternal and Child Health Protection

"Erebuni" MC

“Surb Grigor Lusavorich”

MC

"Beglaryan" MC

"Shengavit" MC

“Grigor Narekatsi” MC

Kanaker-Zeytun

Maternity hospital

"Astghik" MC

"Slavmed" MC

Ararat

Vedi Maternity Hospital

Ararat Hospital MC

Artashat MC

Masis MC

Aragatsotn

Ashtarak MC

Aparan MC

Talin MC

Kotayk

Hrazdan Maternity Hospital

Abovyan Maternity Hospital

Charetsavan MC

Nairi MC

Vayots Dzor

Yeghegnadzor MC

Vayk MC

Jermuk MC

Tavush

"Ijevan MC" CJSC

"Ir-Wing" LLC

"Berd MC" CJSC

"Noyemberyan MC" CJSC

Gegharkunik

Gavar MC

Martuni Maternity Hospital

Sevan MC

Chambarak Health Center

Vardenis Hospital

Shirak

Gyumri Maternity Hospital

Austrian Child and Mother Hospital of Gyumri

Maralik HC

Akhuryan's Mother and Child Center

Artik's Mother and Child HCC

Ashotsk' "Our Lady of Narek" Hospital

Lori

Vanadzor MC

Spitak MC

Stepanavan MC

Alaverdi MC

Tashir MC

Armavir

Armavir MC

Echmiadzin MC

Syunik

Kapan MC

Goris MC

Sisian MC

Meghri Regional MC

33. Your age _____

Thank you for your participation in the survey.

ANALYTICAL CARD OF DELIVERY RECORD OF WOMEN WITH CESAREAN SECTION

	CODE	Note
Place of residence		
Women's Consultation		
Age in the last delivery		
Number of pregnancies		
Number of deliveries		
Outcomes of previous pregnancies 1. Vaginal delivery 2. Cesarean section	1. 2. 3. 4. 5. …	
The course of the given pregnancy 1. Vaginal delivery 2. Cesarean section		
Gestation period during delivery (week)		
State the planned CS indication	literally	
State the unscheduled CS indication	literally	
Indications for Caesarean section		
Obstetrical indications 1. Yes 2. No		
Indications for CS from the fetus 1. Yes 2. No		
Non-obstetrical indications		

1. Yes 2. No		
Availability of related medical specialists' conclusion 1. Yes 2. No		
Method of pain relief 1. Full 2. Regional / epidural		
Process of surgery		
From the begining of surgery to the moment the fetus was taken out 1. Up to 5 minutes 2. 5-7 minutes 3. Over 7 minutes		
Surgery duration		
Volume of blood loss		
Newborn data 1. Mature 2. Premature		
Hypotrophic 1. Yes 2. No		
Apgar scoring		
Complications during surgery 1. Yes 2. No		
Early postoperative period 1. Smooth 2. With complications		
Elaborate on early postoperative complications	literally	
Bed day		

ANALYTICAL SHEET OF INDIVIDUAL PREGNANCY RECORD OF WOMEN WITH CESAREAN SECTION

Place of residence	Yerevan, regional urban settlement, village	
Women's Consultation	Yerevan, regional urban settlement, village	
Age in the last pregnancy		
Number of pregnancies		
Number of deliveries		
Outcomes of previous pregnancies	1. 2. 3. 4. 5. …	
The course of the given pregnancy		
Hospitalization during pregnancy	1. Yes 2. No	
COVID-19 infection during pregnancy	1. Yes 2. No	
Doppler flowmetry was performed	1. Yes 2. No	
If yes, how many times?		
Ultrasound has been performed	1. Yes 2. No	
If yes, how many times?		
Hard-to-access examinations have been conducted	1. Yes 2. No	
Consiliums	1. Yes 2. No	
CS period		

Planned CS		
Unscheduled CS		
Indications for Cesarean section		
Obstetrical indications		
CS indications by fetus		
Non-obstetrical indications		
Availability of related medical specialists' conclusion		
Newborn data		
Patronage		

QUESTIONNAIRE FOR IN-DEPTH INTERVIEWS WITH OBSTETRICIAN-GYNECOLOGISTS

The following data shall be completed by the interviewer in advance.

1. Region _____, 2. City / village / community _____

3. Type of medical facility

1) Women's Consultation operating adjacent to adult polyclinic
2) Women's Consultation operating adjacent to an inpatient obstetrical-gynecological facility

4. Women's Consultation operating in an inpatient obstetrical-gynecological facility

1) Secondary level
2) Tertiary level A
3) Tertiary level B

5. Position

- Doctor at Women's Consultation
- Administrator of Women's Consultation
- Doctor of the Obstetrical Unit
- Doctor of the Gynecology Unit
- Doctor of the Pregnancy Pathology Unit
- Head of Department
- Head of Service
- Chief Doctor/ Director

6. Respondent's gender:

- Female
- Male

OBSTETRICIAN-GYNECOLOGIST WORKING INPATIENT

34. How long are you working in this medical institution? Along with the inpatient, do you provide prenatal care of pregnant women at Women's Consultation? If yes, what part of your employment inpatient work makes? How pregnant women decide to give birth at your place, who refers them to go to the hospital? What part of women choose their doctor for childbirth, and what part of women deliver with the doctor on duty at the time?
35. How busy is your inpatient work schedule? How many deliveries do you handle on monthly basis? How many of these are Cesarean sections? How are the decisions on Cesarean section made, what part of it is planned C-sections? Are there many incidents of unscheduled, emergency Cesarean sections? In which cases are they performed? What do you do in such cases?
36. Do you perform Cesarean section independently? How is the decision on Cesarean section made by the doctors at your facility (single-handedly/by the doctor who is performing the C-section/senior specialist/senior doctor on duty, head of unit, service manager, chief doctor/director/opinion and permission)? When do you have most Cesarean sections performed, during day time, shift work or overtime work hours?
37. What methods of complex delivery management do you master and how often do you handle deliveries with pelvic presentation, vaginal delivery subsequent to Cesarean section, vacuum extraction, forceps extraction?
38. Please identify 3 main cases when Cesarean section is performed: *obstetrical indications, indications of other specialist and at the request of the pregnant woman and her relatives.* Let's discuss your attitude to each of these cases, do you try to find solutions other than the C-section and offer it to the pregnant woman? In which cases? What is the main outcome? When a Cesarean section is required based on other medical specialist's indication (non-obstetrical), do you send the pregnant women to another specialist for examination, or not?
39. In which cases do women or their relatives request Cesarean section (fears, sterilization/ tying the tubes, etc.). Which one of these is acceptable for you? Why? What do you do in such cases to avoid Cesarean section? What is the outcome? If you do not do anything, then why?
40. How can a women's conception method (natural or via assisted reproductive technologies) affect the delivery process? Are there cases when Cesarean section is mandatory? Describe those cases.
41. In your opinion, is there a link between the perinatal morbidity and mortality level and delivery method? Why do you think so?
42. What factors affect doctor's decision with regard to the delivery method? What role does financing play here? What cases do the doctors get bonuses? Why? What consequences does it have?
43. How does the financing system affect on the choice of this or that method of delivery in Armenia? What changes in the pregnancy and childbirth financing system would you suggest to help reduce the frequency of Cesarean sections?
44. What methods of Cesarean section analyses are used in your medical institution? What conclusions did you draw and has the work manner of the medical institution change as a result of these analyses. What results did you achieve due to the use of Robson scale?
45. What measures do you think should be taken to reduce the frequency of Cesarean sections in the Republic of Armenia? Why? How will they contribute to the reduction of Cesarean sections?

DOCTOR WORKING IN WOMEN'S CONSULTATION

(depending on the situation, questions designed for inpatient may be added)

1. How long are you working in this medical institution? Do you work at inpatient parallel with the Women's Consultation? If yes, what part of your employment makes the inpatient job? What part of the deliveries you manage are the pregnant women you provide prenatal care? And what part of the pregnant women you provide prenatal care prefer to deliver with you? How many registered pregnant women do you have on annual basis? What part of them gives birth by Cesarean section on annual basis? Do you perform Cesarean section independently?
2. When is the delivery management plan developed? What are the most frequent indications for Cesarean section? In what cases do you predominantly refer women to Cesarean section? How do you make the decision, who do you consult? In the case of pelvic presentation, what mode of delivery do you prefer?
3. What's your attitude to the decisions on Cesarean section without medical indications? What are the main cases? What are your actions in such cases?
4. If a woman has indications for a planned Cesarean section, how is the inpatient selected? What is your role in choosing the inpatient? What principles you are guided by when referring to an inpatient?
5. In your opinion, what or who has an impact on the decision made by pregnant women with respect to the mode of delivery? Please describe in what manner, to what extent. What is the role of the Women's Consultation doctor in selecting the delivery mode? What is your main position when it comes to the choice of methods?
6. What additional activities are performed in Women's Consultations for successful pregnancy and delivery? Are there "Maternity Schools"? Who are attending? How frequently are these organized? Who is/are responsible for organizing the training courses? What is its impact? Is there a difference between women who visit and those who do not? Is there a psychologist's service? And what do you think, is there is a need for a psychologist, a "Maternity School"? Why do you think so?
7. What measures do you think should be taken to reduce the frequency of Cesarean sections in the Republic of Armenia? Why? How will they affect the reduction of Cesarean sections?

QUESTIONNAIRE FOR IN-DEPTH INTERVIEWS WITH SUBJECT MATTER SPECIALISTS

The following data shall be completed by the interviewer in advance. This is applicable for obstetrician-gynecologists.

1. Region _____, 2. City / village / Community _____

3. Type of medical institution:

1) Polyclinic
2) Inpatient

4. Specialization:

- Cardiologist
- Ophthalmologist
- Vascular surgeon
- Neonatologist

5. Position:

- Doctor of a relevant unit of polyclinic
- Senior doctor on duty
- Senior resident physician
- Head of unit
- Head of service
- Chief doctor/ director

6. Respondent’s gender:

- Female
- Male

1. What pathologies lead you to offer Cesarean section? In which cases is it avoidable, and in which cases is it absolutely indicated?
2. How do you handle the decision of pregnant women on delivery method in the case of pathologies/morbidities, depending on the level of complication? How do you make a decision? Who do you consult with? How do you treat consiliums (case conferencing)?
3. *In the case of an ophthalmologist* - what are your indications for pregnant women with laser vision corrections? Why? It is possible to avoid Cesarean section in such cases? In which case?
4. *In the case of a vascular surgeon* - What are your indications for pregnant women with lower limb varicose veins? Why? It is possible to avoid Cesarean section in such cases? In which case? What measures do you offer pregnant women to prevent vascular complications during pregnancy, labor and postpartum period, which can also help reduce the frequency of Cesarean sections?
5. *In the case of a neonatologist - What is the connection between neonatal* morbidity and mortality and Cesarean sections? In your opinion, from the perspective of neonatal service is the sharp increase in Cesarean sections disturbing or not? What is your opinion, the optimal gestation period of the planned Cesarean sections to avoid fetal distress syndrome? What is your approach to determining the delivery mode for the benefit of fetus through consilium?
6. What is your personal opinion on Cesarean section as a childbirth method? What steps do you take to avoid Cesarean section?
7. What measures do you think should be taken to reduce the frequency of Cesarean sections in the Republic of Armenia? Why? How will they affect the reduction of Cesarean sections?

Questionnaire blocks of in-depth interviews with women who gave birth by Cesarean section

1. Please describe in a few sentence what women's health institutions are located in your area and have your ever used them (women's consultation, maternity hospital)? Did women's consultation operate adjacent to the maternity hospital? What advantages and disadvantages of the women's consultation operating in your area would you mention?
2. How many pregnancies did you have? How many of them resulted in a childbirth? And how many of them ended up in miscarriage? Please specify the gestation period of each. What were the reasons for miscarriage? What is/was the mode of delivery?
3. Please describe how you planned the pregnancy. Have you received an obstetrician-gynecologist's consultation or underwent appropriate checkups? What checkups? What consultations did you receive? When planning the pregnancy, did you have any accompanying disease? What was the disease? What treatment did you get? By what specialist? What did the specialist advise on the conception?
4. Please tell us a little bit, did you have any difficulties with conception and did you use assisted reproductive technologies? If you did not conceive on your own, then before using the assisted reproductive technologies, how long did you try to get pregnant? What's the cause of infertility?
5. Did you visit women's consultation in your area during pregnancy/ pregnancies? If not, then why? And where did you go for consultation? What term of gestation did you visit women's consultation? Why did you prefer that specific women's consultation over the one in your place of residence? Did you visit the same Woman's consultation during all your pregnancies? Why? Did the same doctor manage all your pregnancies? If not, then why?
6. How do/does/did your pregnancy/pregnancies go? What health issues, accompanying diseases did you have (pathologies of organ systems), obstetrical-gynecological complications? If yes, please describe the problems you faced and indicate if you were under the supervision of some specialist. What specialist's supervision were you placed under, how did you select the specialist (referred by the obstetrician-gynecologist or by yourself)?
7. Before getting pregnant, did you have any indication for Cesarean section? If so, by what specialist and what was the indication? If you did not have any issue/s before pregnancy, which could have served as an indication for Cesarean section, then at what pregnancy term has the Cesarean section been planned? Please describe which pregnancy was that. What was/were the indications for Cesarean section? *If it was not the first pregnancy, you should find out* whether the obstetrician-gynecologist has explained the possibility of natural delivery *subsequent to Cesarean section, in the case of pelvic presentation of fetus, twins etc*. If you did not have any indication, why did you decide to choose Cesarean section?
8. If a Cesarean section has been planned, who chose the maternity hospital, you, or the obstetrician-gynecologist? Is the Women's Consultation you visit, adjacent to any maternity hospital? Did you give birth in the maternity hospital adjacent to your Women's Consultation, or somewhere else? Why? How did you choose the doctor? If a Cesarean section was performed, who did it - the obstetrician-gynecologist or senior specialist? Are you satisfied with the doctor providing prenatal care, what about the doctor managing the childbirth? Why?
9. Has the Cesarean section been planned, or it was an emergency operation? When did the indication emerge, at admission in the maternity hospital, during labor, during pushing stage, at what term of pregnancy, how long after the commencement of labor pains? What is the reason? How did the Cesarean section progress? What the condition of the child at birth? Did you have any complications after the Cesarean section? How did the wound heal?
10. If you have an experience of vaginal birth and that of Cesarean section, please compare. Specify which method do you side with. Describe the positive and negative aspects of each. Next time, what delivery mode would you prefer for childbirth? Why?
11. Before childbirth, did anyone explain the positive and negative aspects of Cesarean section and vaginal delivery? Who? In what manner? Did you attend Maternity School during

pregnancy? How long? If you didn't, why? If you attended, what were the benefits? Do you think such courses can play certain role in determining the method of childbirth? And what else can have impact on women when it comes to selecting the method of childbirth?

12. Social-demographic data - age, education, employment, place of residence - region, city / village, in the case of Yerevan - community, women's consultation, maternity hospital.

Thank you for your participation in the survey.

Guide for focus group discussions with women who gave birth

No	Topic	Questions
A	**Introduction (10 minutes)**	Moderator: • Introduces the company and himself/herself • Introduces the purpose of the survey • Informs about the recording technique and assures that the information is highly confidential and anonymous. • Introduces the rules of discussion (there are no right or wrong answers, all emotions and thoughts matter, every single opinion is not subject to discussion, do not interrupt the interlocutors, keep cameras on, if possible, select a comfortable environment, exclude the presence of outsiders in the room, other technical issues). Introduction of participants: age, employment, marital status, number of children, age.
B	**Experience (40 minutes)**	A. How many pregnancies did you have? How many of them resulted in a childbirth? And how many of them ended up with miscarriage? What were the causes of miscarriage? B. Please describe how you planned the pregnancy. Have you received a obstetrician-gynecologist's consultation or underwent appropriate checkups? What checkups did you undergo? What consultation did you receive? When planning the pregnancy, did you have any accompanying disease? What was the disease? What treatment did you get? By what specialist? What did the specialist advise on the conception? C. Did you visit Women's consultation in your area during pregnancy/ pregnancies? If not, then why? And where did you go for consultation? What term of gestation did you visit Women's consultation? Why did you opt for that specific Women's consultation? Did you visit the same consultation during all your pregnancies? Why? Did the same doctor manage all your pregnancies? If not, then why? D. How do/does/did your pregnancy/pregnancies go? What health issues, accompanying diseases did you have: pathologies of organ systems, obstetrical-gynecological complications? If yes, please describe the problems you faced and indicate if you were under the supervision of some specialist. What specialist's supervision were you placed under, how did you select the specialist (referred by the obstetrician-gynecologist or by yourself)? E. What is/was the mode of delivery/deliveries of your child/ren? ***MODERATOR, ASK ONLY WOMEN WITH CESAREAN SECTION*** F. Before getting pregnant, did you have any indication for Cesarean section? If yes, by what specialist and what was the indication? G. If you did not have an indication for Cesarean section before pregnancy, at what term of gestation was the Cesarean section planned? Please describe which pregnancy was that. What was the cause of indication for Cesarean section? ***MODERATOR, IF IT WAS NOT THE FIRST PREGNANCY, IDENTIFY*** whether the obstetrician-gynecologist

		explained her the potential of natural delivery subsequent to previous Cesarean section, in the case of pelvic presentation of fetus, twins etc. H. **If you did not have an indication**, why did you decide to choose Cesarean section? I. If a Cesarean section was planned, who chose the maternity hospital? Who influenced your final decision *(family members, obstetrician-gynecologist, etc.)*? What factors have affected your final decision? J. If the Cesarean section was not planned, please describe what was the cause of such a decision? What time of the day was it performed? K. Is the Women's Consultation you visit, adjacent to any maternity hospital? Did you give birth in the maternity hospital adjacent to you Women's Consultation, or somewhere else? Why? How did you choose the doctor? L. Who has performed Cesarean section, did you choose in advance the doctor to perform it? Who has provided prenatal care? Has the prenatal doctor recommended that doctor for Cesarean section? Are you satisfied with the prenatal doctor, what about the doctor managing the delivery, and the midwife? Why? ***MODERATOR, INTERVIEW ONLY WOMEN WITH EXPERIENCE OF <u>VAGINAL DELIVERY</u>*** M. Who has made the decision on the method you deliver? Who did you consult with? N. What pregnancy term has the the method of childbirth been planned? O. During pregnancy, have you experienced concerns and/or intentions related to the choice of childbirth method? What type? If yes, what was the basis for making a choice of vaginal delivery? P. Have you had an experience of Cesarean section during previous pregnancies? If yes, what concerns did you have during this pregnancy when choosing the method of vaginal delivery? Who did you talk, consult with? What factors did you take into account? Q. Who has chosen the maternity hospital? Who influenced your final decision *(family members, obstetrician-gynecologist, etc.)*? What factors have affected your final decision? R. Is the Women's Consultation you visit, adjacent to any maternity hospital? Did you give birth in the maternity hospital adjacent to you Women's Consultation, or somewhere else? Why? How did you choose the doctor? S. Who has performed your vaginal delivery, did you choose in advance the doctor to conduct it? Who has provided prenatal care? Has the prenatal doctor recommended that doctor for Cesarean section? Are you satisfied with the prenatal doctor, what about the doctor managing the delivery, and the midwife? Why?
C	**Knowledge (15 minutes)**	T. ***MODERATOR, IF NECESSARY, MAKE NOTES ON THE BLACKBOARD.*** Can you indicate situations when women go for Cesarean section? What are the justifications? In which case, in your opinion, Cesarean section can be avoided, and why? What cases are mandatory? Why? U. Before childbirth, did anyone explain to you the positive and negative aspects of Cesarean section and vaginal delivery? Who? In what manner? How did this information help you?

		V. Have you heard about "Moternity schools"? Did you attend Maternity Schools? If yes, what was its impact? If you did not attend, then why? W. Is there a psychologist's service? And what do you think, is there is a need for a psychologist?
D	**Attitude (25 minutes)**	A. Can you list **positive consequences of Cesarean section?** And **negative?** **B.** What are the **positive and negative consequences of vaginal childbirth?** C. What type of childbirth do you consider to be right for a woman? Why? D. What's your attitude to the delivery mode used by your circles? At present, what delivery mode are people inclined towards more? Why? E. How do you treat the decisions on Cesarean section without medical indications? What are the main cases? Where are your actions in such cases? F. When facing the choice of delivery mode, whose opinion would you consider? G. What is the role of the Women's Consultation doctor in selecting the delivery mode? H. ***If you have an experience of vaginal birth and that of Cesarean section***, please compare. Specify which method do you side with. Describe the positive and negative aspects of each. I. Next time, what delivery mode would you prefer for childbirth? Why? J. Retrospectively, what method of delivery would you choose? K. Who are more interested in Cesarean section? L. In your opinion, what delivery method do your friends, relative choose? Why? M. And which method do doctors recommend? N. In which case is the recovery easier? Why?
	Further steps (10 minutes)	O. What type of changes would you recommend to guide women better when it comes to the choice of delivery method? And what changes would you recommend to help optimize the delivery mode chosen by the doctor? P. What measures do you think should be taken to reduce the frequency of Cesarean sections in the Republic of Armenia? Why? How will they affect the reduction of Cesarean sections? Q. Would you like to attend preparatory classes with your husband before the delivery? How should these courses be organized to maximize the likelihood of your participation? R. What topic do you think you have knowledge gap? S. Would you like to have a supporting person with you during your next delivery? Who would you prefer to have as a supporting person - husband, sister, friend, preliminarily selected doula paid for her service?
	Information sources (5 minutes)	T. What sources **are appropriate to** get information on pregnancy and childbirth methods? Why? U. Which sources are more **reliable** for you**?** Why?
H	**Wrap up (5 minutes)**	Moderator sums up the discussion and thanks for the participation.